UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 1 4 2016

REPLY TO THE ATTENTION OF:
WW-16J

Colonel Christopher G. Beck
District Engineer
U.S. Army Corps of Engineers
Louisville District
P.O. Box 59
Louisville, Kentucky 40201-0059

Subject: Comments on Public Notice LRL-2013-635-GJD; Proposed Seven Hills Mine, Warrick County, Indiana.

Dear Colonel Beck:

The U.S. Environmental Protection Agency has reviewed the above referenced public notice and the related Clean Water Act (CWA) Section 404 permit application for discharges associated with United Minerals' proposed Seven Hills Mine, an approximately 1,700 acre open pit coal mine in the Highland-Pigeon Creek watershed southeast of Elberfeld in Warrick County, Indiana. The EPA has previously participated in multiple interagency site visits, reviewed and commented on the preliminary plan, and jointly commented on this project with the U.S. Fish and Wildlife Service (FWS) (Enclosure 1). As currently proposed, the project would directly impact 510.16 acres of wetlands (of which 463.18 acres are forested wetlands), 53,840 linear feet of streams and 72.85 acres of open water.

Based on our review of the previous and currently available information, and pursuant to Part IV, paragraph 3(a) of the 1992 CWA Section 404(q) Memorandum of Agreement between the EPA and Department of the Army, the EPA is hereby notifying the U.S. Army Corps of Engineers (Corps) that this project may have substantial and unacceptable impacts on aquatic resources of national importance.

The proposed Seven Hills project would mine through over 460 acres of floodplain forested wetlands and 10 miles of streams tributary to Pigeon Creek. From its headwaters, Pigeon Creek flows approximately 50 miles through the project area and bisects downtown Evansville, before joining the Ohio River. The EPA considers Pigeon Creek, its floodplain forested wetlands, and the Ohio River to be aquatic resources of national importance. Project area aquatic resources consist of contiguous tracts of increasingly rare floodplain forested wetlands. These wetlands are diverse and productive systems that are located on floodplains and inundated by flood waters. The Pigeon Creek floodplain forested wetlands filter nutrients, excess sediments and other

pollutants from Pigeon Creek before it enters the Ohio River. The loss of these project area aquatic resources would also reduce habitat and the floodplain's ability to attenuate and store flood waters.

The CWA Section 404(b)(1) Guidelines (Guidelines) provide the substantive environmental criteria against which this Section 404 permit application must be evaluated. Based on our review of the public notice and associated permit application materials, the applicant has not demonstrated compliance with several aspects of the Guidelines. These concerns are outlined below and described in detail in the attachments.

40 CFR Part 230.10(a) Alternatives Analysis

Fundamental to the Guidelines is the premise that no discharge of dredged or fill material may be permitted if a practicable alternative to the proposed discharge exists that would have a less adverse impact on the aquatic environment.[1] The Seven Hills Mine would abut United Minerals' proposed 3,085 acre High Point Mine. As proposed, these mines would share coal slurry facilities and other common features. Haul roads and other features that were proposed as components of the High Point Mine are designed to serve both mines and, in certain cases, some only serve the Seven Hills Mine. The Surface Mining Control and Reclamation Act permit application for the Seven Hills Mine also includes portions of the High Point operation in the mine boundary. Evaluating these operations separately limits the analysis of alternatives, including opportunities for a more complete evaluation of additional practicable alternatives that reduce or eliminate significant impacts to the floodplain forested wetlands and other aquatic resources on the Seven Hills Mine site. Therefore, the EPA reiterates the request that the Corps treat the proposed High Point Mine and proposed Seven Hills Mine as a single project.

The Guidelines provide a rebuttable presumption that less damaging practicable alternatives exist. In its application, United Minerals highlights that 17 billion tons of recoverable coal remain in Indiana and 130 billion tons occur within the Illinois Coal Basin, which includes Indiana coal. Based on the information provided by United Minerals, EPA does not believe the applicant has demonstrated that the Seven Hills site is the least environmentally damaging practicable alternative. For example, United Minerals should provide a comparative evaluation of the environmental impacts associated with additional alternatives within the same coal basin that would meet the basic project purpose and entail recovery from other coal reserves and holdings that it owns or that could reasonably be obtained through a parent company or other contractual relationships.

We look forward to continuing to work with the Corps and applicant to explore practical, cost-effective alternatives to reduce the environmental impacts of the project as currently proposed. Attachment 1 and 2 respectively provide detailed comments on the alternatives analysis and cumulative impacts analysis.

[1] 40 CFR Part 230.10(a)

40 CFR Part 230.10(b) and (c) Water Quality and Significant Degradation

The Guidelines state that a discharge of dredged or fill material may not be permitted if it causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standards,[2] or causes or contributes to significant degradation of the waters of the United States.[3] The EPA is concerned that the proposed loss of project area floodplain forested wetlands and tributaries would increase nutrient loading and sedimentation, causing or contributing to the significant degradation of Pigeon Creek and ultimately affecting the quality of water of the Ohio River.

The effects of multiple large scale surface mining operations and other stressors have increasingly taken a toll on Pigeon Creek. The loss of nearly 500 acres of floodplain forested wetlands and 10 miles of streams at the Seven Hills Mine site would add to the nearly 400 acres of wetlands and 10 miles of stream impacts that have already been permitted for surface coal mining operations within the Highland-Pigeon Creek watershed in the last 8 years. The total wetland impact proposed for the Seven Hills Mine site is larger than the total wetland impacts for all permitted coal mines in the Highland-Pigeon Creek Watershed. Results from initial water quality modeling conducted by the EPA show increased sediment and nutrient loading to Pigeon Creek and the Ohio River based on the loss of wetlands just within the Seven Hills Mine site footprint. Where Pigeon Creek joins the Ohio River, nutrient loads increase by over 3,500 pounds annually and sediment loads increase by over 260,000 pounds annually.

The EPA's concerns regarding impacts to water quality are further heightened by the State of Indiana's list of impaired waters, which identified biotic communities in Pigeon Creek as already being impacted by low dissolved oxygen and high nutrient levels.[4] Furthermore, given the algal issues in the Ohio River in 2015, the EPA is concerned about possible effects in the Ohio River with respect to safe drinking water and recreation. We would like to continue working with you to identify effective measures to better ensure protection of water quality, consistent with the Guidelines. Additional discussion regarding water quality concerns is provided in the attachments.

40 CFR Part 230.91-98 Compensatory Mitigation

The EPA is concerned that, based on the past performance of compensatory mitigation efforts in nearby watersheds, proposed efforts to create or restore forested wetlands on recently mined land may not be successful in supplying the suite of important water quality, flood water attenuation and habitat functions that existing floodplain forested wetlands currently provide. For example, efforts to restore floodplain forested wetlands associated with the North Millersburg Mine failed because the finished topography on much of the reclaimed area was too high in elevation to function as floodplain forest. That area now consists chiefly of a mixture of upland fields, upland non-forested areas and large, shallow permanent impoundments. The EPA recommends that the mitigation

[2] 40 CFR Part 230.10(b)
[3] 40 CFR 230.10(c)
[4] IDEM, 2014 Indiana Integrated Report Appendix H, 303(d) Attachment 1: TMDL Development Schedules

plan be revised to ensure consistency with the requirements of the Federal Mitigation Rule. The plan should identify appropriate performance standards, monitoring and adaptive management to determine if the mitigated wetlands are developing into the desired resource type and providing the expected functions. The plan also needs to include financial assurances to guarantee the long term management and potential for corrective action of the mitigation sites. Attachment 3 includes detailed comments regarding mitigation.

In light of these concerns, the EPA believes that the project may have substantial and unacceptable impacts on aquatic resources of national importance pursuant to Part IV, paragraph 3(a) of the August 1992 Memorandum of Agreement between the EPA and Department of the Army regarding section 404(q) of the CWA.

Thank you for the opportunity to provide comments on this project. Please contact Wendy Melgin at (312) 886-7745 with any questions you may have or to schedule additional discussions.

Sincerely,

Tinka G. Hyde
Director, Water Division

Attachments
- Overall Project Comments
- Cumulative Impacts
- Mitigation

Enclosures
- March 17, 2016 USEPA and FWS letter
- Millersburg II Mine Documents

cc:
- George DeLancey, Army Corps of Engineers (via email)
- Michael Ricketts, Army Corps of Engineers (via email)
- LeAnn Devine, Army Corps of Engineers (via email)
- Scott Pruitt, US Fish and Wildlife Service (via email)
- Martha-Clark Mettler, IDEM (via email)
- David Carr, IDEM (via email)

Attachment 1

Overall Project Comments

Attachment 1 - Overall Project Comments

General Comments

Section 404 of the CWA requires applicants to provide enough detail in the application to determine compliance with the Section 404(b)(1) Guidelines (the Guidelines).[1] The amount of effort and detail in the analysis should be commensurate with the level of aquatic resources impacted. While United Minerals has revised its preliminary application from previous submittals, the project fails to comply with the Guidelines in that the applicant has not demonstrated the project is the least environmentally damaging practicable alternative (LEDPA). While EPA believes the proposed project is not the LEDPA and may cause significant degradation, the application also lacks sufficient information to make a reasonable judgement that the discharge will comply with the remainder of the Guidelines' requirements. For example, United Mineral does not account for secondary impacts or provide detailed mining plans. Additionally, the proposed project fails to include all appropriate and practicable measures to minimize harm to the aquatic environment as specified in this attachment. As such, the EPA requests that the Corps deny the permit. If the Corps does not intend to deny the permit, EPA continues to recommend that an environmental impact statement (EIS) be prepared. An EIS will allow the Corps to identify the full range of alternatives, environmental impacts and mitigation opportunities.

Floodplain forested wetlands are a transitional habitat between the river or stream and upland and serve as a wildlife corridor between habitats. Nutrients are exchanged in these wetlands, with floodwater depositing silt and nutrients and the upland contributing leaf litter and runoff. The fluctuating water levels and nutrient rich soils make these wetlands highly diverse and excellent habitat for aquatic and terrestrial wildlife. Furthermore, floodplain forested wetlands provide services that cannot easily be duplicated by man-made facilities. During heavy rainfall, these wetlands divert, store, and slow the flow of water to reduce flood damage downstream, filter nutrients (especially nitrogen and phosphorus) and sediments from water flowing through them, sequester carbon dioxide and act as a sink for carbon.

The loss of over 500 acres of wetlands performing the services listed above may have a detrimental effect on water quality and may cause or contribute to a violation of state water quality standards.[2] On Indiana's 303(d) list of impaired waters, Pigeon Creek is listed as impaired for *E. coli*, dissolved oxygen, impaired biotic communities and nutrients, and the Ohio River is listed as impaired for *E. coli*, dioxin, total mercury and PCBs.

Assessment of Impacts

Although United Minerals accounts for direct and cumulative impacts associated with the proposed project, secondary impacts are not addressed as required by the Guidelines.[3] Additionally, United Mineral's proposed compensatory mitigation accounts for only direct impacts. Comments on Cumulative Impacts and Mitigation are addressed in separate attachments (Attachments 2 and 3).

[1] 40 CFR 230.12
[2] 40 CFR 230.10
[3] 40 CFR 230.11

Attachment 1 - Overall Project Comments

Secondary Impacts

Secondary impacts on an aquatic ecosystem are associated with the discharge of dredged or fill material, but do not result from the actual placement of the dredged or fill material.[4] EPA believes all the wetlands United Mineral labeled "avoided" along the west bank of Pigeon Creek as well as, the wetlands and streams which extend off site to the west of the project limits, will be subject to secondary impacts from this project. Within the project area alone, this includes over 200 acres of wetlands and over 13,000 linear feet of stream.

The floodplain forested wetlands to the west of Pigeon Creek are part of both palustrine and riverine systems; they receive hydrologic inputs from surface water, groundwater and flood events. Similarly, the streams on the project area receive the same hydrologic inputs as the wetlands through which they flow. The proposed mine pit will bisect the floodplain forested wetlands, severing the tributary streams to the west of Pigeon Creek from their headwaters and diverting flood waters to the east of Pigeon Creek. During mining operations, the mine pit will be dewatered and ground water levels will be drawn down and locally reduced. Roadways and conveyer systems within the project area may also cause secondary impacts. At a minimum, the secondary impact assessment should include a review of impacts to the following hydrologic sources:

Reduction of surface water sources
- Wetlands and streams within the buffer on the west bank of Pigeon Creek
- Wetlands bisected by roads/conveyor systems that connect Seven Hills to High Point

Reduction of flood sources
- Wetlands and streams within the buffer on west bank of Pigeon Creek

Reduction of ground water sources
- Wetlands and streams within the buffer on the west bank of Pigeon Creek
- Pigeon Creek baseflow
- Wetlands and streams that extend offsite to the west of the proposed project

United Minerals should also describe how the water within the mining pit will be handled during all phases of the operations.

Plans "Subject to Change"

It is difficult to accurately assess impacts to aquatic resources and provide meaningful comments when United Minerals has stated multiple times within the application that the impacts, and even the reason for impacts, may change. United Minerals states on page 1 the "disturbances may include, but are not limited to, surface mining, coal haulage and access roads, coal processing, storage and loadout facilities, mine management, maintenance and support facilities, and topsoil and subsoil piles." United Minerals further states that its Operations Map on page 1 is "the general operations plan and is subject to change." United Minerals states on page 3 of its application that the post-mining land uses are "subject to change due to property owner waivers and modifications to the mining plan but are current as of May 2015." Similarly, following the

[4] 40 CFR 230.11(h)

impacts table on page 19, United Minerals states "[t]he above impacts are based on the current operations map, which is subject to change as mining commences."

With both the impacts and the post-mining landscape "subject to change," EPA cannot make a reasonable judgement as to whether or not the proposed discharge will comply with the Guidelines and cannot determine if the proposed discharge includes all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem as required by the Guidelines.[5]

For example, there are two haul roads labeled on the operations map which extend to the east over Pigeon Creek and impact wetlands on the west side of Pigeon Creek. However, within Appendix A of the application there are crossing designs which indicate the northern crossing is proposed as a conveyor system and the southern crossing is identified as a bridge crossing; not two haul roads as indicated on the Operations Plan. Also, designs and engineered drawings are not provided for the remainder of the haul road or conveyor system as it extends east towards the proposed High Point Mine (LRL-2013-444-rjb). The construction and design of these features could include diversion ditches and culverts for the haul road or the conveyer as it extends through wetlands on the Seven Hills Mine onto the High Point Mine. The inclusion or exclusion of these features could change the amount of direct and secondary impacts from the construction of features through the middle of wetlands. Further, United Minerals has not discussed why all the haul roads and the conveyor system are necessary and why alternative designs or points of ingress or egress are not possible. United Minerals has not discussed why impacts to aquatic resources which allow direct access to the High Point Mine are needed, as the processing plant is planned on the Seven Hills mine. This further underscores the recommendation highlighted below and in the March 17, 2016 joint EPA/FWS letter (Enclosure 1) that the two mines be treated as a single project.

United Minerals does provide a general discussion on mining reclamation methods in the Midwest and general statements on the effects of mining, such as on soil infiltration, ground water recharge, and increased base flow. However, it is not clear in the Land Use section which reclamation methods would be used on site and if all of the effects of mining are anticipated. United Minerals needs to discuss the specific reclamation methods proposed and describe specific impacts to soil infiltration, ground water recharge, and increased base flow.

Independent Utility

As EPA and FWS highlighted in the March 17, 2016 joint letter, the Seven Hills Mine would abut the proposed 3,084.6 acre High Point Mine, which is also operated by United Minerals. United Minerals' Surface Coal Mining and Reclamation Act permit from Indiana Department of Natural Resources (IDNR) overlaps with the High Point Mine's boundary. As proposed, the Seven Hills Mine would share the coal slurry pond established as a component of the High Point Mine. Haul roads and other attendant features that would provide access to and serve the Seven Hills Mine are also described in the High Point Mine application. Based on the information currently available to the agencies, it is unclear whether the Seven Hills Mine would have independent utility.

[5] 40 CFR 230.12

Attachment 1 - Overall Project Comments

As discussed above, there are two haul roads which connect the Seven Hills Mine and the High Point Mine. Both mines have proposed utilizing separate coal processing plants. Had United Minerals submitted these mines together, the review of the project for compliance with the Guidelines could have considered additional ways to minimize impacts and even potential on-site mitigation opportunities though preservation, enhancement, and restoration.

Therefore, the EPA continues to request that the Corps treat the proposed High Point Mine and proposed Seven Hills Mine as a single project. Evaluating the two mines as a single project would allow for a more complete evaluation of practicable alternatives, including efforts to further avoid and minimize environmental impacts. The agencies' previous letters requesting that both proposed mines be evaluated as a single project are enclosed (Enclosure 2).

Aquatic Resources of National Importance

EPA is concerned that the project's proposed CWA Section 404 discharges may result in unacceptable adverse impacts to the Ohio River, Pigeon Creek and its floodplain forested wetlands. EPA considers Pigeon Creek, its floodplain forested wetlands and the Ohio River all Aquatic Resources of National Importance (ARNI). The forested floodplain forested wetlands along Pigeon Creek are an important and productive habitat. In addition to the habitat value of natural areas, floodplain forested wetlands serve a critical role in the watershed by reducing the risk and severity of flooding to downstream communities by attenuating and storing floodwater. These wetlands improve water quality by filtering nutrients, processing organic material, and reducing sediment loads before Pigeon Creek discharges into the Ohio River.[6]

The Pigeon Creek floodplain is an extremely valuable resource for numerous and significant wildlife species, including migratory birds, non-game wildlife, and threatened and endangered species. Portions of the corridor contain IDNR wetland conservation areas, and other portions are recognized for their unusually high diversity of bird species. The permit area is bordered on the east by an Audubon Society Important Bird Area and on the southeast by the IDNR Bluegrass Fish and Wildlife Area. Bird surveys by Audubon Society members in these two areas and in the Buckskin Bottoms area upstream of the permit area reported over 200 species of birds, including 25 species of waterfowl and 14 species listed as state endangered. Given the proximity and similarity of habitat, it is highly likely that many of those bird species also use this area.

From its headwaters, Pigeon Creek flows approximately 47.5 miles, bisecting downtown Evansville before joining with the Ohio River. During the 1800's, Pigeon Creek was part of the Wabash-Erie Canal and a portion of Pigeon Creek on-site is part of the former canal. Today, the Creek provides several recreational paths and fishing access for the public to enjoy. The City of Evansville has developed the Pigeon Creek Greenway Passage. This path is a multiuse trail that follows the creek and then extends along the banks of the Ohio River. The Greenway also incorporates boat launches that the City of Evansville touts as "an important urban watershed and wildlife corridor where you might see an egret or blue heron. With its diversity of plants and animals, the Greenway serves as an outdoor classroom and a valuable learning tool for the

[6] http ://water. epa.gov/type/wetlands/bottomland.cfm

environment."[7] In 2004, the path was designated a National Recreation Trail by the National Park Service.

Wetlands in the Pigeon Creek watershed protect the quality of the Ohio River from nonpoint source pollution caused by urban runoff, agricultural activities, and both existing and abandoned mines. The Ohio River flows 981 miles to Cairo, Illinois, where it discharges into the Mississippi River. The Ohio River flows through or borders six states: Illinois, Indiana, Kentucky, Ohio, Pennsylvania, and West Virginia. Nonpoint source pollution from urban runoff, agricultural activities, and abandoned mines is a major cause of water pollution in the Ohio River. By volume, the Ohio River is the largest contributor of flow to the Mississippi River. The river itself provides drinking water, hydroelectric energy, shipping routes to the Mississippi, recreation and fishing. Several fish consumption advisories currently exist for the Ohio River.[8]

Significant Degradation

The preamble to the Guidelines states that discharges may not be permitted if they will have a "significantly" adverse effect on various aquatic resources. In this context, "significant" and "significantly" mean more than "trivial."

Secondary and cumulative impacts are explicitly evaluated during the significant degradation determination. Cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such changes can result in major impairments of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems.[9] See Attachment 2 - Cumulative Impacts for a discussion. As stated above, United Minerals does not analyze or discuss secondary impacts within the permit application. This analysis and discussion needs to be added to the application.

During mining, sediment concentrations and load rates increase dramatically compared to the pre-mining condition.[10] Total suspended solids and total dissolved solids are likely to increase. Increased erosion associated with mining can alter streamflow and transport sediment and pollutants, which adversely affect downstream aquatic ecosystems. Studies have found that more frequent, higher daily flow volumes occur during the active phases of mining compared to pre-mining conditions.[11] This is attributable to the loss of vegetative cover that normally reduces runoff volumes and promotes infiltration. As such, the proposed loss of nearly 500 acres of forested wetlands from this project will increase nutrient loading and sedimentation, causing or contributing to significant degradation of Pigeon Creek and ultimately affecting the quality of

[7] http://www.evansvillegov.org/modules/showdocument.aspx?documentid=12739
[8] http://orsanco.org/river-factsconditions
[9] 40 CFR 230.11(g)
[10] Bonta, James V., 2000. "Impact Of Coal Surface Mining And Reclamation On Suspended Sediment In Three Ohio Watersheds." *Journal of the American Water Resources Association* (JAWRA) 36(4): 869-887.
[11] Bonta, James V., C. R. Amerman, T. J. Hadlukowicz, and W. A. Dick, 1997. Impact of Coal Surface Mining on Three Ohio Watersheds-Surface-Water Hydrology. *Journal of the American Water Resources Association* (JAWRA) 33(4): 907-917.

water to the Ohio River. As stated above, both Pigeon Creek and the Ohio River are listed on Indiana's list of impaired waters for various pollutants. The Ohio River experienced algal problems in 2015, which raises concerns about the possible effects to safe drinking water, wildlife and recreation (see Enclosure 1).

In addition to localized impacts to water quality, the increase of nutrients, and specifically nitrogen, in the watershed has had a demonstrated effect on water quality. The United States Geologic Survey (USGS) published a study on the percentage of nitrogen from interior watersheds delivered to the Gulf of Mexico. The USGS identified the Highland-Pigeon Creek watershed as one of the watersheds that contributes more than 90% of its nitrogen to the Gulf.[12] EPA's initial Soil Water Assessment Tool (SWAT) modelling results, which do not include cumulative impacts of mining, indicate that the loss of the wetlands along Pigeon Creek would increase nutrient and sediment loads to the Ohio River by an annual amount of over 3,500 pounds and over 260,000 pounds respectively (see Enclosure 1).

Section 404(b)(1) Guidelines Analysis

EPA has serious concerns with the project as proposed due to the availability of less damaging practicable alternatives, the inadequacy of avoidance and minimization measures, failure to consider any secondary impacts, and an inadequate compensatory mitigation proposal. Detailed comments on cumulative impacts and the proposed mitigation are included in Attachment 2 – Cumulative Impacts and Attachment 3 – Mitigation respectively.

Least Environmentally Damaging Practicable Alternative

In accordance with 40 CFR 230.10(a) "…no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the impact does not have other adverse environmental consequences." Based on the information provided by United Minerals, the applicant has not demonstrated that this site is the LEDPA. Identification of the LEDPA is achieved by performing an alternatives analysis that estimates the direct, secondary, and cumulative impacts to jurisdictional waters resulting from each alternative considered.

United Minerals estimates in the application that the Seven Hills Mine has ~12 million recoverable tons of coal valued at $480 million. The discussion on page 35 of United Minerals' application highlights that 17 billion tons of recoverable coal remain in Indiana and 130 billion tons occur within the Illinois Coal Basin, which includes Indiana coal. United Minerals then states that the Indiana reserves would maintain the State of Indiana's current extraction rate for 500 years and separately the entire Illinois Coal Basin could meet the United States coal demands for over 100 years based on current extraction rates. With such large reserves remaining in Indiana alone, it is reasonable to consider that less damaging alternatives exist within the basic project purpose to mine coal in Indiana, although United Minerals' broader stated purpose which is to "produce bituminous coal by surface mining methods to contribute to power production for the United States." As the Guidelines provide a rebuttable presumption that less damaging practicable alternatives exist, United Minerals should provide a comparative

[12] Richard B. Alexander, Richard A. Smith, and Gregory E. Schwarz, "Effect of stream channel size on the delivery of nitrogen to the Gulf of Mexico", *Nature*, 17 February 2000, Vol. 403

evaluation of the environmental impacts associated with additional alternatives within the same coal basin that would meet the basic project purpose and entail recovery from other coal reserves and holdings that it owns or that could reasonably be obtained through a parent company or other contractual relationships.

Avoidance and Minimization

Avoidance and minimization of impacts are evaluated during the sequencing required by the Guidelines.[13] In order to comply with the Guidelines, the applicant must demonstrate that all practicable steps have been taken to avoid and minimize unavoidable impacts to the maximum extent possible and finally, to compensate for any unavoidable losses.

As stated above, the general nature of the operations plan and United Minerals' uncertainty of impacts impedes the review of the proposed project and precludes meaningful comments on minimization efforts. While United Minerals incorporated a physical buffer to Pigeon Creek as a minimization measure, it did not analyze or address the secondary impacts that would occur to those waters in the "buffer" along Pigeon Creek. Likewise, the application does not contain any specific designs of attendant features. Nor does the application contain a discussion on why haul road and conveyor belt access is needed between the two mines and why those features had to be placed through wetlands and not configured differently to avoid or reduce impacts to aquatic resources. Further, United Mineral did not describe or discuss how water pumped from the pit would be handled and discharged. If a direct discharge from the pit to a water of the US is proposed, a Clean Water Act section 402 National Pollution Discharge Elimination System permit would be required. EPA is not aware of any applications submitted to the Indiana Department of Environmental Quality by United Minerals for this project to date.

Environmental Justice Analysis

EPA's comments are pursuant to Executive Order (E.O.) 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations)* and E.O. 13045 (*Protection of Children from Environmental Health Risks and Safety Risks*). The applicant's determination that there are no disproportionately high and adverse impacts to communities with EJ concerns is premature, given the inadequacy of the data, analysis, and conclusions presented by United Minerals.

Inadequate data

For EJ analyses, EPA recommends the use of Census tract-level data when available and where appropriate, as opposed to county-level data. Census tract-level data is readily available from the U.S. Census Bureau American Community Survey (ACS) 2008-2012 five-year summary data. Typically, use of coarser data (such as county level) can mask pockets or artificially dilute presence of vulnerable populations that could potentially be impacted by the project. Using EJSCREEN,[14] EPA determined that potential disproportionate impacts to vulnerable populations near the project area may occur as a result of the proposed project (see discussion below regarding impacts to children under the age of five). If the applicant continues to rely on county-level data for the appropriate geographic unit of analysis, EPA recommends it provide a rationale

[13] 40 CFR 230.10(d)

[14] EPA's publicly-available EJ analysis tool (https://www.epa.gov/ejscreen)

defending this decision in its permit application or future modifications to the current application.

In addition to providing demographic data at the Census tract level, EPA also recommends the applicant include both maps and tables with raw data, in addition to percentages for the Census tracts that may be directly or indirectly impacted as a result of the proposed project. Maps, particularly at the Census-tract level, help demonstrate a spatial relationship between potential impacts and affected communities.

EPA notes that the unassigned table on page 54 includes percentages of "*white alone, not Hispanic or Latino*," but does not include a breakdown of data on minorities in the area. EPA recommends including data pertaining to minority populations in the project area, including raw numbers and percentages.

Analysis and Premature Conclusions

Per E.O. 13045, analysis and disclosure of potential effects to young children is necessary because some physiological and behavioral traits of children render them more susceptible and vulnerable than adults to environmental health and safety risks. Children may be more highly exposed to contaminants because they generally eat more food, drink more water, and have higher inhalation rates relative to their size. They may be more vulnerable to the toxic effects of contaminants because their bodies and systems are not fully developed and their growing organs are more easily harmed. The applicant has already identified that Warrick County, Indiana, exceeds the state and national percentages for persons under the age of 18, and its analysis assumed that this was because higher populations of children live in larger populations centers, some four miles away from the proposed site. However, EJSCREEN reveals a high number of children under the age of 5 in one of the Census tracts within the project area. Therefore, the analysis should include information on potentially adverse impacts to children as a result of the proposed project.

The project area is in attainment for all six commonly found air pollutants (also known as "criteria pollutants"). However, EJSCREEN reveals elevated levels of annual fine particulate matter ($PM_{2.5}$). EPA is concerned that continued release of air pollutants as a result of the proposed project, including $PM_{2.5}$, will potentially cause adverse impacts to vulnerable populations, such as children under the age of five (see above documentation that vulnerable populations exist in project area). According to EPA's *America's Children and the Environment*[15] report, exposure to particulate matter aggravates respiratory and cardiac functions. In children, this translates to decreased lung function growth, exacerbation of allergic symptoms, and increased respiratory problems. EPA recommends the applicant provide an analysis that addresses potentially continued or increased impacts as a result of the proposed project to children under the age of five.

Based on the inadequacy of the alternatives analysis discussed above, EPA is unable to determine whether other alternatives have less impact on communities living with EJ concerns. We believe United Minerals' determination that there are no disproportionately high and adverse

[15] https://www.epa.gov/ace

impacts as a result of the proposed project is premature and not supported by the provided data and analysis.

CWA Section 404 Corps' Public Interest Review

Within the Section 404 permit review, the Corps must take an applicant's purpose and need into account during their public interest review.[16] The applicant's stated purpose and need is an expression of the underlying goals for the proposed project.

EPA is concerned that United Minerals has not provided information to demonstrate project need, which should consider the current demand, market conditions, and currently available coal from other sources. The application states that mining will be based on market conditions, but does not substantiate that there is a market demand as discussed in the application on demand, usage and production are based on various data from 2009 through 2011.

Indiana coal production is down 7.2% over the previous year.[17] This drop in production can be attributed to a decrease in coal demand domestically as well as globally. U.S. coal consumption decreased 11% between January and July of 2015, with coal electricity generation falling to 36% of total generation, down from 50% ten years ago.[18] Reuters reported in November 2015 that in September 2015, natural gas surpassed coal as the leading power source in the U.S.[19] Overseas, China's imports have fallen by 31% and use has declined by 5% between January and August 2015.[2] Lenders have also recognized the decline in coal. Major banks, such as Wells Fargo, Morgan Stanley, Bank of America, and Citigroup have all vowed to cut financing to coal mining projects due to both their adverse effects on the global climate as well as low expectations for a rise in future coal mine demands.[20]

The coal reserves in the proposed mine are owned by Peabody and Alcoa. The application should analyze both companies' current demand, the coal tonnage at current stockpiles, and the coal reserves at operating mines. EPA notes that there are other coal companies in southern Indiana that are managing excess coal from currently operating mines. For example, on November 3, 2015, it was reported that nearby Duke Energy in Indiana was attempting to reduce its current stockpiles through deferment of contracts and resale.[21]

In light of these factors, the applicant needs to clearly demonstrate the need for the project.

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[16] 33 CFR 320.4 (a)(2)(i)

[17] http://coalvalleynews.com/news/business/1151/u-s-coal-production-continues-to-trend-below-2014

[18] http://www.huffingtonpost.com/entry/coal-consumption-decrease-greenpeace-study_5640b6c7e4b0411d3071a07d

[19] http://www.reuters.com/article/2015/12/01/us-usa-natgas-coal-idUSKBN0TK52K20151201#OsvZvsfB2ZtGIbCR.97

[20] http://money.cnn.com/2015/12/01/investing/paris-climate-talks-wall-street-banks-coal/

[21] http://www.platts.com/latest-news/electric-power/louisville-kentucky/duke-energy-indiana-defers-coal-deliveries-as-21405101?hootpostid=a0ccf05c4cf633c79f1febdd0359e39b

Attachment 1 - Overall Project Comments

Specific Comments
Below are comments on specific statements made by United Minerals in its application:

Land Use - Page 3

> The following post-mine land uses are subject to change due to property owner waivers and modification to the mining plan but are current as of May 2015.

As discussed above, the lack of certainty on the post mining landscape and potential modifications to the mining plan make it difficult to accurately assess direct, secondary and cumulative impacts. Based on the proposed changes in the location of the aquatic resources in the post-mine landscape shown on the Mitigation Map, United Minerals does not propose to reestablish the connections between the offsite wetlands and the proposed forested wetlands. This segregation of resources offsite should be accounted for when assessing secondary impacts.

Land Use - Page 4

> Coal mining in the Midwest utilizes water control structures such as terraces which in turn slows the runoff velocity. This significantly reduces erosion and transport of suspended solids as compared to typical runoff in areas with an agricultural land use. Site reclamation produces topographic relief consistent with the local area and incorporates many erosion control methods such as terracing and dry-dam structures to control runoff velocity.

While United Minerals characterizes some mining reclamation practices in the Midwest, it does not discuss which reclamation and erosion control practices would be applied on site nor where those practices would be applied. For example, United Minerals discussed water control structures that include terraces and dry dams; however, given the project's location in the floodplain of Pigeon Creek, is not clear if these techniques would be used or where they would be located. The application and location of these practices could affect the amount of secondary impacts and impacts to downstream water quality

Groundwater - Page 24

> There are no known residential groundwater wells or wellhead protection zones that exist in or within 1,000 feet of the permit area. The so called residential water wells in the area are wells in name only, in that the originally manually dug cavities that were constructed as water wells, have out of necessity been converted to cisterns, or simple underground storage vessels. These vessels are regularly refilled with water obtained from the local public utility and hauled to each specific site by tanker trucks.

EPA is concerned about the water wells that may be affected despite United Minerals' reference to "so called drinking water wells." Based on United Minerals' narrative, it is not clear how many of these wells would be impacted and what their purpose is (i.e. drinking water, agriculture, and industrial). These features should be quantified and assessed for impact under the Corps' Public Interest Review.

Attachment 1 - Overall Project Comments

Groundwater – Page 51

> Mining and mine reclamation result in increased soil infiltration... Mined soils function as a groundwater storage system that slowly release infiltrated water resulting in diminished flooding downstream... In lower elevations, actual base flows could be sustained or elongated depending on the permeability of the spoil.

EPA believes that if an increase in baseflow occurs post mining, an increase in TDS and other minerals will also occur due to the infiltration of water through mine spoils. Given the proximity to downstream waters, EPA does not agree that impacts will be isolated to the immediate mined area as United Minerals asserts on page 4. This secondary effect on groundwater chemistry and change in base flows should be quantified and mitigated.

Attachment 2

Cumulative Impacts

Attachment 2 – Cumulative Impacts

Cumulative Impacts – Overall Comments

In order to fully analyze the past, present, and reasonable foreseeable impacts as required under the National Environmental Policy Act (NEPA) and the Guidelines,[1] the applicant should prepare a cumulative impacts analysis that details the changes in hydrology, drainage patterns, and channel composition in the watershed. Impact assessments for wetlands should include direct, cumulative and secondary impacts from previous and current actions, as well as impacts to surface and ground water hydrology from future actions. As indicated in Attachment 1, General Comments, United Minerals does account for cumulative impacts associated with the proposed project, but secondary impacts are not addressed in the revised application as required by the Guidelines.[2]

Cumulative impacts are required as part of the factual determinations required under the Guidelines.[3] Cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems.[4] In the revised application, United Minerals provides an assessment of the Clear Branch-Pigeon Creek Watershed (i.e. 12-digit Hydrologic Unit Code (HUC) watershed scale). However, EPA believes the scope of United Minerals cumulative impact assessment needs to be revised because the assessment is focused on the smaller watershed and not the entire Highland-Pigeon Creek watershed.

Scope of Cumulative Impacts Assessment

As mentioned in Attachment 1, General Comments, EPA used the Soil and Water Assessment Tool (SWAT) model, to assess the 8-digit HUC Highland-Pigeon Creek watershed. The initial modelling results indicated that project impacts would have a measurable effect on both Pigeon Creek and the Ohio River. This was a conservative estimate because modelling did not include data from the Indiana Department of Natural Resources (IDNR) indicating that past mining impacted 26.4% of the Indiana portion of the Highland-Pigeon Creek watershed. Including these additional impacts into the model would have increased the effect of cumulative impacts on downstream water quality. Table 1 and Figure 1 illustrate the locations of past mining.

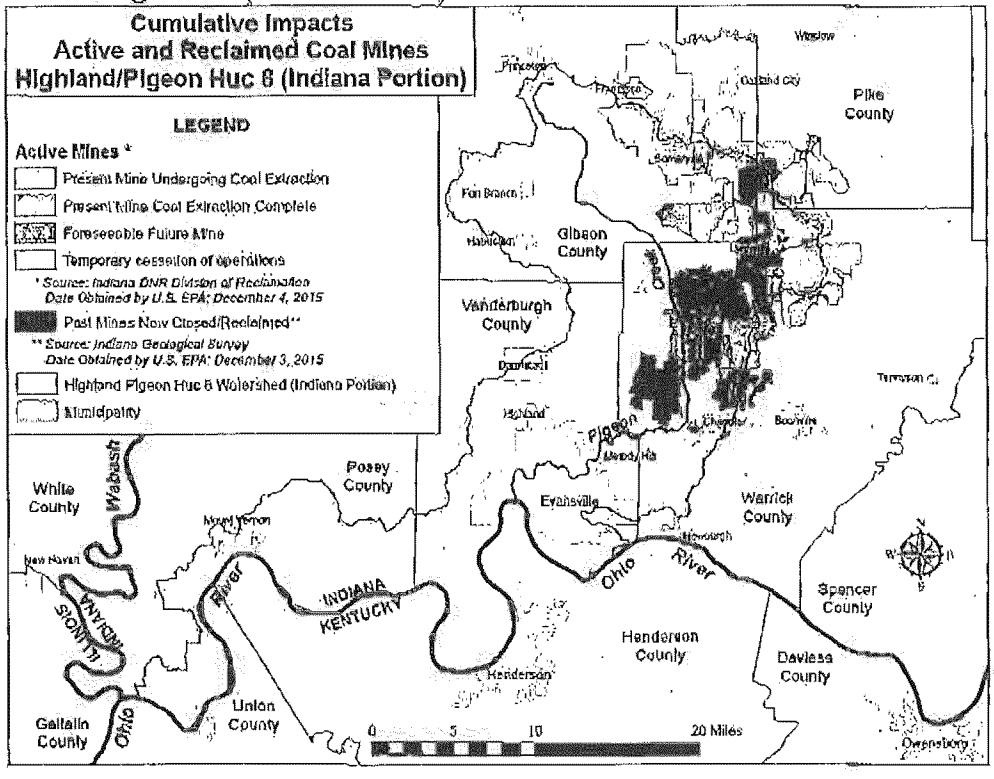
[1] 40 CFR 230.11(g)
[2] 40 CFR 230.11(h)
[3] 40 CFR 230.11 (g)
[4] 40 CFR 230.11(g)

Attachment 2 – Cumulative Impacts

Table 1. Acreage and square mile summaries of the cumulative footprints of various stages of mining activities in the Highland-Pigeon Creek watershed (8-digit HUC 05410202)

Mining Activity in Indiana Portion of Highland-Pigeon (HUC 8) Watershed	**Acres**	**Square Miles**
Actively removing overburden and/or coal extraction	26,856	42
Overburden removal and coal extraction complete	7,308	11
Permit bonded - no overburden removal or coal extracted	4,899	8
Temporary cessation of operations	10	~0
Reclaimed Mines	23,135	36
Total	**62,208**	**97**

Figure 1. Cumulative Impacts of Active and Reclaimed Coal Mines in the Highland-Pigeon Creek 8-digit HUC (Indiana Portion)



EPA believes that United Minerals' narrow focus on the Clear Branch-Pigeon Creek is not adequate to assess the cumulative impacts of surface coal mining. The effects on the downstream portions of Pigeon Creek and the Ohio River justify including the entire Indiana portion of the Highland-Pigeon Creek watershed into a revised cumulative impacts assessment.

Significant Degradation

Although the cumulative impacts analysis needs to be revised to include the larger watershed, United Minerals' assessment estimated that several thousand acres of wetlands were impacted from past mining activities. United Minerals went on to state in its assessment that there is the

potential for hundreds of additional acres of wetland impacts from future mining in the Clear Branch-Pigeon Creek Watershed alone.

United Minerals' cumulative surface effects summary within the Clear Branch-Pigeon Creek Watershed on page 39 of the application:

12-Digit Cumulative Surface Effects Summary							
Watershed	Watershed Area	Previously Affected by Mining	Watershed Previously Affected by Mining	Currently Affected by Mining	Watershed Currently Affected by Mining	Potentially Affected by Mining	Watershed Potentially Affected by Mining
	(acre)	(acre)	(percent)	(acre)	(percent)	(acre)	(percent)
Clear Branch-Pigeon Creek	22,960	10,940	47.7	155	0.7	4,062.5	15.2

United Minerals' estimate of impacts within the Clear Branch-Pigeon Creek Watershed on page 40 of the application:

Estimated Stream and Wetland Impacts from Past Mining			
Watershed	Previously Affected by Mining	Estimated Stream Impacts	Estimated Wetland Impacts
	(acre)	(feet)	(acre)
Clear Branch-Pigeon Creek	10,940	153,160	2,286.5

United Minerals' estimate of future impacts within the Clear Branch-Pigeon Creek Watershed on page 40 of the application:

Estimated Stream and Wetland Impacts from Potential Mining			
Watershed	Potentially Affected by Mining	Estimated Stream Impacts	Estimated Wetland Impacts
	(acre)	(feet)	(acre)
Clear Branch-Pigeon Creek	4,062.5	153,160	700

The tables above, provided by the applicant, demonstrate that, even without considering the cumulative or secondary impacts within the context of the larger Highland-Pigeon Creek watershed, the loss of streams and wetlands tributary to Pigeon Creek has been substantial. Therefore, the continued loss of these resources, as a result of the proposed project, may cause or contribute to the significant degradation of Pigeon Creek. The preamble to the Guidelines states that discharges may not be permitted if they will have "significantly" adverse effects on various aquatic resources. In this context, "significant" and "significantly" mean more than "trivial."

Characterization of the Timing of Coal Mining Impacts

In the application, United Minerals stated that coal mining activity in Warrick County dated back to the 19th century. However, a review of historic United States Geologic Survey (USGS) Maps indicates that surface coal mining within the Highland-Pigeon Creek watershed occurred primarily after 1963. The three maps below show previous surface mining in the Highland-Pigeon Creek watershed, existing surface mining, the location of the proposed Seven Hills and High Point Mines, and the location of impaired reaches on Pigeon Creek.

Attachment 2 – Cumulative Impacts

Figure 2

Locations of Surface Mining in the Highland-Pigeon Creek Watershed (1960-1967)

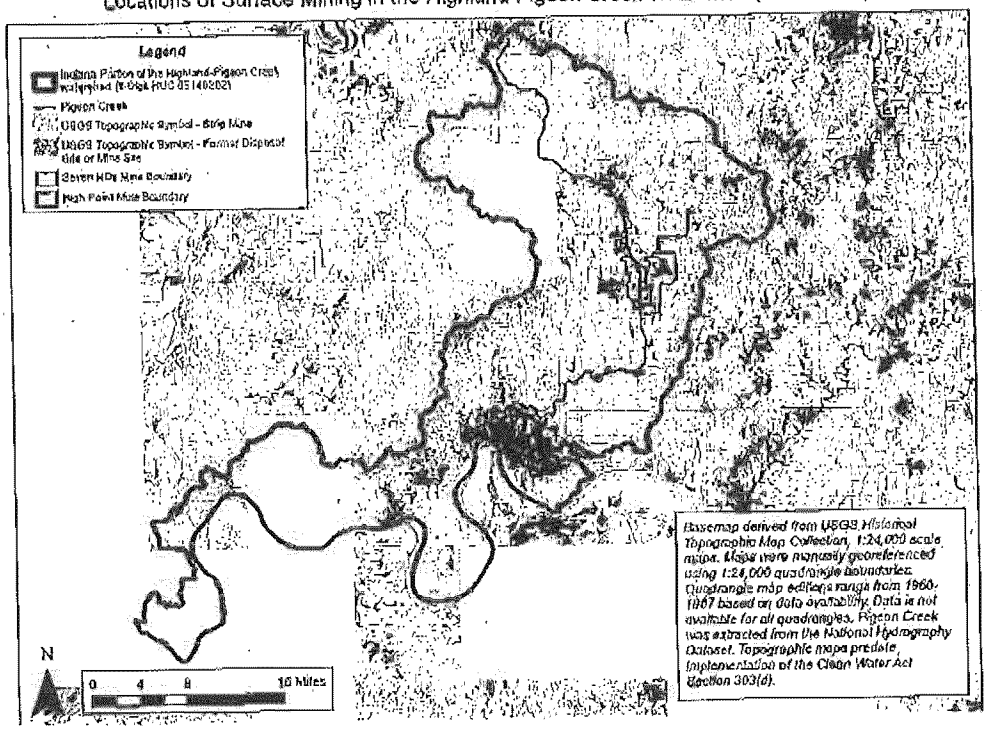
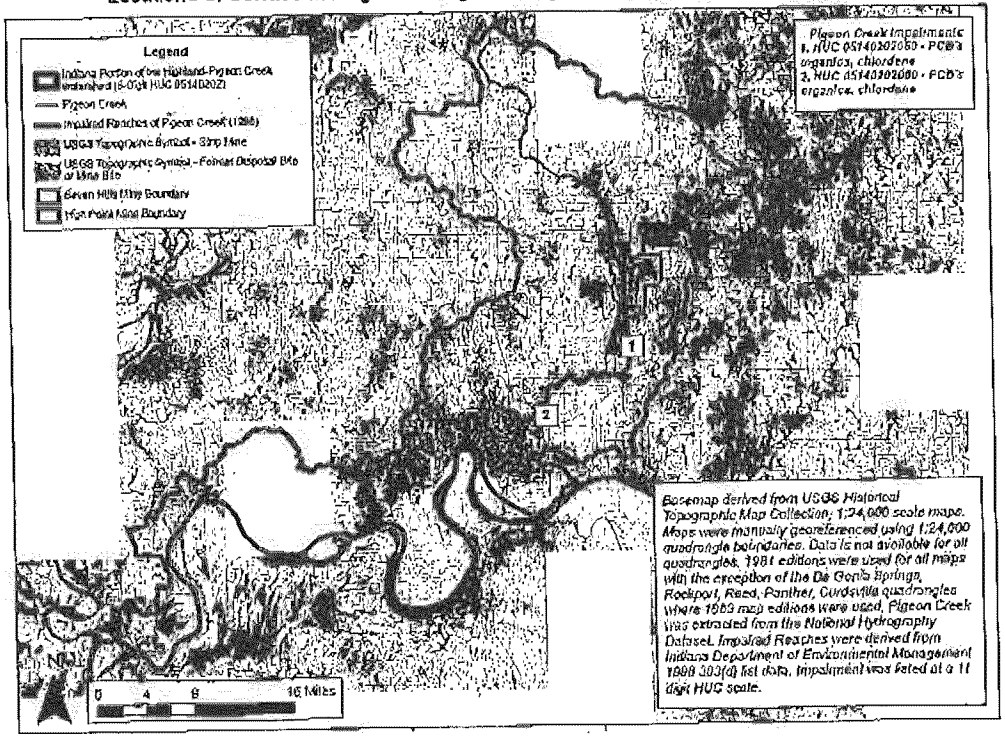


Figure 3

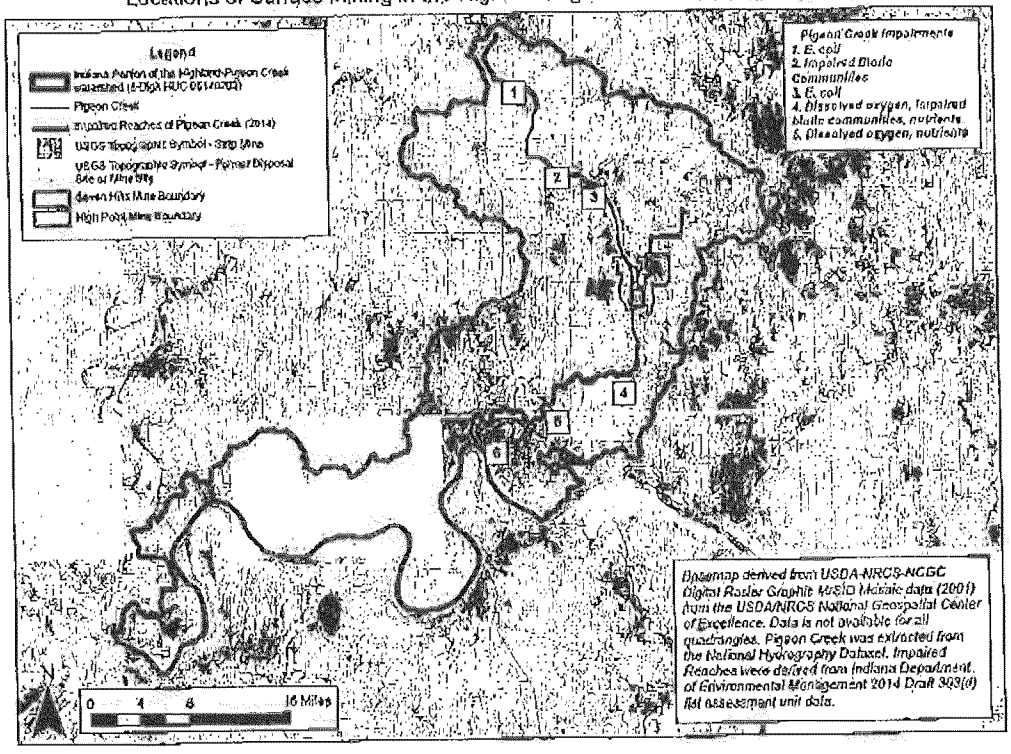
Locations of Surface Mining in the Highland-Pigeon Creek Watershed (1981-1983)



Attachment 2 – Cumulative Impacts

Figure 4

Locations of Surface Mining in the Highland-Pigeon Creek Watershed (2001)



The increase in mining operations in the watershed from the 1960's to present day contributed to the impairment of Pigeon Creek downstream of mining activities. It is important to note that the reach of Pigeon Creek bordered by floodplain forested wetlands is considered unimpaired, as shown on IDEM's online 303(d) Tool.[5] However, IDEM is currently considering listing that portion of Pigeon Creek downstream of the proposed project for total dissolved solids, *E. coli*, nutrients, and dissolved oxygen. The changes in impairments downstream of mining activity supports EPA's position that the proposed mine may significantly affect Pigeon Creek.

Intensity of Contemporary Impacts

Table 2 shows direct mining impacts over the past 8 years in the larger Highland-Pigeon Creek watershed. EPA found that direct impacts to 352.67 acres of wetlands and 527,689 linear feet of streams were authorized by the Corps through CWA Section 404 Individual permits for surface coal mining operations. The most recent impacts were authorized by the Corps in February of 2016. While EPA does not believe the cumulative impacts analysis should be limited to the past 8 years, we note that 24.9% of the 56,299 acres of land affected by surface coal has been permitted within that time frame.

[5] http://www.in.gov/idem/nps/pages/c303d/index.html

Attachment 2 – Cumulative Impacts

Table 2 Direct Mining Impacts in Highland-Pigeon Creek Watershed

Mine	Corps Project #	Mine area (ac)	Total Wetlands (ac)	Total Stream (lf)
Liberty	LRL-2010-218-gjd	1,646	105.8	20,343
Liberty Amendment	LRL-2014-336-gjd	136	34	5,035
Wild Boar	LRL-2008-228-gjd	8,853	145.33	346,309
Somerville South Amendment 2	LRL-2010-00953-r9r	946	27.87	37,365
Somerville South Amendment 3	LRL-2013-0423-sew	1,746	33.07	84,353
West 61 North Amendment	LRL-2007-1330-A-gjd	233	6.5	11,889
Cardinal Mine	LRL-2009-937-rjb	439	0.1	22,395
Total		**13,999**	**353.07**	**527,689**

The two Liberty Mines are located to the south and east of the proposed Seven Hills Mine. The Liberty mine permits, shown in Table 2, authorized impacts to 139.8 acres of wetland and 25,378 linear feet of stream. Table 3 highlights the additional wetland and stream impacts which may result from the proposed High Point Mine and Seven Hills Mine. These three adjacent mines would cumulatively impact over 135,000 linear feet of streams and nearly 700 acres of wetlands, with the vast majority of impacts occurring within the Clear Branch-Pigeon Creek watershed. The combined footprint of the three mines would cover 18,762.6 acres, or 28.5% of the Clear Branch- Pigeon Creek subwatershed and 7.9% of the larger Highland-Pigeon Creek watershed.

Table 3 Direct Impacts Proposed for Seven Hills Mine and High Point Mine

Mine	Mine area (ac)	Total Wetland Impacts (ac)	Total Stream Impacts (lf)
Seven Hills	1,678.6	510.16	53,840
High Point	3,085	45.7	59,347
Total	**4,763.6**	**555.86**	**113,187**

While there have been large impacts in the watershed during the past 8 years, the total wetland impact for Seven Hills is more than all the recently permitted coal mines combined in the Highland-Pigeon Creek watershed. This would is the single largest wetland complex proposed for impact in the southern Illinois Basin within the last eight years. EPA believes that the Seven Hills Mine may cause or contribute to the significant degradation already expressed in both the Clear Branch-Pigeon Creek and Highland-Pigeon Creek watersheds, and that those impacts may have a detrimental effect on the water quality of Pigeon Creek and downstream waters.

Attachment 3

Mitigation

Attachment 3 – Mitigation

Compensatory Mitigation Plan

United Minerals proposes to mitigate for 510.16 acres of wetland (462.18 acres palustrine forested, 27.13 acres palustrine emergent, 19.81 acres of palustrine scrub-shrub, and 1.04 acres of palustrine unconsolidated bottomland) and 53,840 linear feet of ephemeral, intermittent and perennial streams using a combination of on-site stream mitigation, and on-site and off-site wetland mitigation, in and out-of-type. Approximately 49,627 linear feet of stream is proposed to be constructed on-site in the approximate original contour.

Compensatory mitigation is the last step in the sequence during a Clean Water Act (CWA) Section 404 permit review.[1] An in-depth discussion regarding mitigation is premature without a demonstrated need for the project and subsequent determination of measures to avoid and minimize impacts to streams and wetlands. However, EPA has reviewed the proposed on-site and off-site compensatory mitigation plans and offers the following comments at this time.

United Minerals' compensatory mitigation plan (the plan) does not consider and compensate for the secondary, cumulative, and temporal effects of this project on the immediate and greater watershed. With two active and proposed abutting mines in the same watershed, the analysis needs to factor in the impacts from these mines when planning mitigation.

The plan does not address all components of a compensatory mitigation work plan as required under the 404(b)(1) Guidelines (Guidelines).[2] Of the twelve required components of a compensatory mitigation plan, the plan fails to provide the following:

- The manner in which the resource functions of the compensatory mitigation address the needs of the watershed and ecoregion;[3]
- A description of factors considered when selecting the off-site mitigation site; specifically the practicability of accomplishing self-sustaining aquatic resource restoration and enhancement;[4]
- An adequate description of site protection instruments for the proposed compensatory mitigation sites;[5]
- An adequate rationale for the determination of credit ratios;[6]
- An adequately detailed mitigation work plan which details construction methods, timing and sequence, sources of water including connections to existing waters and uplands, plans to control invasive species, water management plan and a grading plan;[7]
- An long-term management plan;[8]
- An adequate adaptive management plan;[9] and
- Appropriate financial assurances.[10]

[1] 40 CFR 230.91(c)
[2] 40 CFR 230.94(c)
[3] 40 CFR 230.94(c)(2)
[4] 40 CFR 230.94(c)(3)
[5] 40 CFR 230.94(c)(4)
[6] 40 CFR 230.94(c)(6)
[7] 40 CFR 230.94(c)(7)
[8] 40 CFR 230.94(c)(11)
[9] 40 CFR 230.94(c)(12)
[10] 40 CFR 230.94(c)(13)

Attachment 3 – Mitigation

Credit ratios determination

The mitigation ratio proposed for forested wetland is 2:1. In support of this ratio, the applicant states that off-site mitigation will begin once the permit is issued, thereby offsetting both temporal and cumulative loss. This proposed mitigation ratio is not sufficient given the valuable functions of the resources proposed to be impacted, the temporal loss of function between the time of impact and mitigation, the length of time needed for the maturation for forested wetlands, and the risk of failure in establishing forested wetlands. According to national wetland status and trend reports published by U.S. Fish and Wildlife Service, forested wetlands have experienced the greatest decline of all wetland types. More importantly, forested wetlands are extremely difficult to restore/create and take up to 20 years to become fully functional.

EPA recommends that the applicant be required to mitigate for forested floodplain wetlands at a ratio of 4:1. This is appropriate given that the Federal Mitigation Rule states that the district engineer must require a mitigation ratio greater than one-to-one where necessary to account for the method of compensatory mitigation (e.g., preservation), the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site.[11] For mitigation to be considered successful, performance standards in the plan would have to be achieved. It is our understanding that neither stream nor wetland hydrology will be re-established until well after the end of mine excavation for those areas of the project where mitigation is proposed within the mine footprint (as opposed to the mitigation proposed at the "avoided" areas).

Further, the Guidelines indicate that when a functional or condition assessment is not used to determine compensatory mitigation, a minimum 1:1 ratio compensation ratio must be used.[12] As such, the proposed ratio of 0.5:1 for palustrine emergent wetland and palustrine unconsolidated bottomland is not adequate. A rationale for the allocation of ratio's at less than 1:1 is a required component of a compensatory mitigation plan.[13]

Previous mitigation projects on mine sites have shown that the establishment, restoration, and enhancement of aquatic resources involves risk, and that success in generating functional lift is often elusive. The U.S. Fish and Wildlife Service asserts that wetlands of this magnitude, and in this landscape location, cannot be adequately restored based on the failure of previous efforts to restore bottomland and floodplain forested wetlands associated with the North Millersburg Mine. In that case, the finished topography on much of the reclaimed area was too high in elevation to function as floodplain forest. Whereas the original intention of the reclamation plan was to reproduce floodplain elevations with forest surrounding the impoundments, in some areas the land adjacent to the impoundments are more comparable to rolling hills than floodplains. The area now consists chiefly of a mixture of upland fields, upland non-forested areas and large, shallow permanent impoundments. The Federal Mitigation Rule requires the Corps to incorporate the consideration of risk into its compensatory mitigation decisions. This is generally

[11] 40 C.F.R. 230.93(f)(2)
[12] 40 C.F.R. 230.93(f)(1)
[13] 40 C.F.R. 230.94(c)(6)

done by applying ratios to required compensation so that the amount of compensation will be adequate to offset the authorized impacts, even if the mitigation actions are not 100% successful.

On-site mitigation

The plan proposes to restore 510.6 acres of palustrine forested wetlands within the mine footprint, in addition to the avoided areas to the east of Pigeon Creek. The plan discusses how restoration of wetlands in the avoided area will establish the hydrologic connection between streams and wetlands during periods of overbank flooding. However, it is unclear how this connection will function with the presence of a levee that runs along the east edge of Pigeon Creek, directly west of the other avoidance area on the east side of Pigeon Creek. The floodway modification plan for the area east of Pigeon Creek is not supported by hydrologic monitoring or modeling. The application indicates a runoff retention ratio of 5:1 for the proposed area; however, runoff retention ratios of 20:1 are considered optimal for wetland nutrient cycling and vegetation support for forested wetlands based on the study referenced in the application. Additional clarification is needed on the estimation that the contributing cumulative watershed is 2,500 acres. Overall, the plan does not detail how the proposed stream and wetland mitigation will connect with and benefit aquatic resources adjacent to the permit boundary.

Assessment of existing uses should also consider the increased streambed infiltration that results in re-built streams using soil and material from recently mined areas. It is likely that intermittent and ephemeral streams would not have adequate flow, which will impact existing uses and downstream flow.

Overall, there is a lack of detail on reclamation processes and timelines as these relate to what we understand is a sequentially continuous mining approach. In the application, United Minerals provides a general discussion on mining reclamation methods in the Midwest, and general statements on the effects of mining on soil infiltration, ground water recharge, and increased base flow. However, in the Land Use Section it is not clear which reclamation methods would be used on-site and if all of the effects of mining have been anticipated. The application indicates that mining and reclamation will occur simultaneously as pits are backfilled and re-soiled as the next cut is made; re-soiled areas will then be revegetated, and returned to the approved post-mining land uses.[14] The impacts are proposed to occur over a period of 7 to 8 years; however, the timing and rate of mining will be dependent on market demand fluctuations and geologic conditions.[15] The uncertainty in the timing and rate of mining, and the fact that the Plan and Map will be further subject to change due to property owner waivers and modifications to the mining plan,[16] makes it difficult to determine the direct, secondary and cumulative impacts of the project and adequate compensatory mitigation. United Minerals needs to discuss the specific reclamation methods to be used, and describe specific impacts to soil infiltration, ground water recharge, and increased base flow, as these are critical factors in gauging the success of the proposed on-site compensatory mitigation.

[14] Seven Hills Mine Clean Water Act Section 404 Permit Application Narrative Section 1: Proposed Impact Site, A. Project Summary, Page 1.

[15] Seven Hills Mine Clean Water Act Section 404 Permit Application Narrative Section 1: Proposed Impact Site, A. Project Summary, Page 1.

[16] Seven Hills Mine Clean Water Act Section 404 Permit Application Narrative Section 1: Proposed Impact Site, 3. Land Use and Soils, a. Land Use, Page 3.

Attachment 3 – Mitigation

The Mitigation Map details the anticipated post mining reclaimed landscape. Four of the six proposed sediment ponds will be retained as open water mitigation.[17] While sediment ponds were placed and configured to control sedimentation and surface runoff from the area during mining, we do not believe that they will replace the lost functions of floodplain forested wetlands in the post mining landscape. The application states "Generally as a result of federal and state regulatory reclamation requirements, reclaimed sites include mitigated wetlands and streams having increased species and habitat diversity thereby enhancing the ecological function of the area. The post-mine land use of open water will approximate the pre-mine acreage. The additional range of aquatic habitat types as a result of reclamation will be an improvement over existing conditions."[18] Notwithstanding the applicant's statement that its mitigation will be an improvement over the existing resources, EPA does not believe this to be the case. Floodplain forests are a transitional habitat between the river or stream and upland and serve as a wildlife corridor between habitats. Nutrients are exchanged in these wetlands, with floodwater depositing silt and nutrients and the upland contributing leaf litter and runoff. The fluctuating water levels and nutrient rich soils make these wetlands highly diverse and excellent habitat for aquatic and terrestrial wildlife. Furthermore, floodplain forested wetlands provide services that cannot easily be duplicated by man-made facilities. During heavy rainfall, these wetlands divert, store, and slow the flow of water to reduce flood damage downstream. Converting wetlands to open water ponds in the post mining landscape leads to a loss of wetland habitat and function and the Guidelines require such loss to be mitigated appropriately.[19]

EPA recommends United Minerals explore mitigation options that do not include open water ponds. For example, considering the extensive impacts to the Highland-Pigeon Creek watershed as identified in the IDEM Highland-Pigeon Creek watershed management plan, stream corridor restoration efforts for the channelized sections of Pigeon Creek within, as well as up and downstream of the project boundary, are warranted.

Off-site mitigation

In addition to the on-site reclamation, United Minerals proposes off-site mitigation on Greathouse Island, an abandoned 608 acre oxbow of the Wabash River, in Posey County, Indiana. The proposed mitigation measures include reforestation on 316.9 acres of open land and enhancement of 266.3 acres of existing forested wetland. United Minerals proposes to generate 450.1 mitigation credits from this work. The off-site wetland mitigation proposal is not acceptable. This proposed site is outside of the watershed of impact. While it may provide some benefits to the Ohio River downstream, it will not provide functional benefits to the Highland-Pigeon Creek watershed which has been extensively altered by mining. The instability of the proposed site is of concern, as this a remnant meander of the Wabash. The river and its floodplain are part of a dynamic system, largely controlled by upstream perturbations that may work to reactivate former channels and influence channel shifting in the long-term. This complicates the long term management of the site and maintenance of functions in perpetuity. Further, while the objectives of the project are to provide flood, sediment, and nutrient storage to the Wabash River, the applicant did not quantify the level of functional lift to be provided

[17] Appendix A, Map C

[18] Seven Hills Mine Clean Water Act Section 404 Permit Application Narrative Section 1: Proposed Impact Site, 3. Land Use and Soils, a. Land Use, Page 4.

[19] 40 CFR § 230.93

compared to existing conditions. The mitigation plan needs to describe the resources and the functions that exist currently at the site, the ecological lift to the watershed resulting from the mitigation and the long term likelihood of success.

EPA does not support the use of Greathouse Island as off-site mitigation for the proposed mining impacts in the Pigeon-Creek watershed. The proposed mitigation site consists of former agricultural fields with forested wetlands bordering the former meander and portions of the river. The proposed mitigation would be considered vegetative enhancement rather than restoration. The enhancement activities may not prove successful in a system where the applicant indicates "Hydrology is currently sufficient and periodically excessive. Head and backwater flooding, ponding, and high water tables may delay certain activities while simultaneously promote vigorous establishment of target species."[20] The enhancement activities proposed do not merit the amount of credit proposed based on the site conditions, and would not compensate for the resources lost due to the project.

Mitigation for Cumulative and Secondary Impacts
United Minerals has failed to account for both cumulative and secondary impacts in its mitigation plan. As discussed in the Cumulative Impacts comments (Attachment 2), multiple mining operations exist at both the 8- and 12-digit HUC watershed. As discussed in the Overall Project Comments (Attachment 1), the wetlands and streams that extend off-site to the west of the project limits and the wetlands labeled as "avoided" along the west bank of Pigeon Creek, may be secondarily affected by this project due to the reduction of surface, flood, and groundwater sources during mining operations. Further, due to the increase in base flow anticipated from increased soil infiltration through mine spoils, there may be secondary effects on groundwater mineralization.

United Minerals indicates that temporal loss will be addressed through the restoration and enhancement activities proposed at the Greathouse Island site. EPA does not consider this to be an appropriate mitigation site for reasons stated above. Further, the application states that completion of the off-site wetland mitigation at Greathouse Island will likely occur by the end of the second growing season following permit issuance and "will occur long before the vast majority of impacts occur at the Seven Hills Mine site."[21] Considering the life of the mine is 6 to 7 years, approximately 1/3 of the mining impacts will likely be completed before the construction at Greathouse Island is completed. It is unclear if the proposed timetable includes the typical 10 year monitoring required for forested wetland restoration or additional monitoring if the 10 year performance standards are not met (i.e. deemed unsuccessful by the Corps). This timetable may be further extended given the potential adaptive management measures that may be required due to the instability at this site.

Furthermore, recreating streams in a post mining landscape and creating forested wetlands from bare root seedlings is difficult, and delays and obstacles should be expected. Temporal losses take into account activities that will require time for vegetation and hydrology establishment,

[20] Seven Hills Mine Clean Water Act Section 404 Permit Application Narrative, Section 7: Off-Site Wetland Mitigation Plan, Page 80.
[21] Seven Hills Mine Clean Water Act Section 404 Permit Application Narrative, Section 7: Off-Sire Wetland Mitigation Plan, Page 80.

stream channel construction, and adaptive management and monitoring. EPA recommends that adequate mitigation for temporal losses be proposed by the applicant.

Other Corps Districts within EPA Region 5 have created and utilized a series of factors and value components to determine compensatory mitigation for temporal loss for both streams and wetlands. The components considered include the length of time between impact and completion of mitigation, the period between mitigation completion and maturity, the extent of long term protection measures in addition to restoration type and buffer work incentives. Based on this work, EPA recommends additional mitigation of 30% of the total impacts to compensate for the temporal loss of streams and wetlands on the site.

EPA recommends United Minerals conduct a thorough hydrologic assessment, including surface water and groundwater modeling and monitoring well installation to determine the extent of cumulative and secondary impacts as a result of the mining operation. EPA recommends compensatory mitigation be required for cumulative and secondary impacts. This additional mitigation could include direct restoration of additional resources off-site, preservation of high quality resources on-site, and special permit conditions requiring additional active or post-reclamation monitoring or study. If monitoring indicates adjacent streams and wetlands are drained or otherwise negatively impacted by the proposed mining activity, compensatory mitigation should be required to offset the reduction of surface and ground water sources contributing the hydrology of the adjacent systems.

Monitoring and Long-term Management

The proposed monitoring plan included with the application is insufficient because it lacks monitoring of specific parameters. The monitoring program for this project must require biological, chemical, and physical assessments throughout mining operations, including: 1) prior to the initiation of mining activities to establish baseline conditions; 2) during mining operations to determine potential impacts to aquatic habitat and downstream water quality; and 3) after the completion of stream and/or wetland restoration and site reclamation activities for a minimum of five years to determine mitigation success. In the current application, the applicant has not proposed monitoring during mining. As part of the monitoring program for impacted and reconstructed streams, biological monitoring should be required, where applicable, to ensure there is no degradation to the communities that inhabit the aquatic resources.

The applicant currently proposes to monitor for 10 years or until success criteria are met. EPA agrees with this monitoring schedule as long as appropriate performance standards are established and met post mining. However, it should be noted that the expected tree growth may not advance during the 10 year monitoring period to the point where it will qualify as a palustrine forested wetland.

The applicant needs to provide financial assurances for CWA Section 404 mitigation and a long-term management plan. The Guidelines state that "financial assurances may be in the form of performance bonds, escrow accounts, casualty insurances, letters of credit, legislative appropriations for government sponsored projects, or other appropriate instruments."[22] The inherent risk in re-creating streams and wetlands on-site in the post mining landscape, necessitate the security of appropriate financial assurances.

[22] 40 CFR 230.93(n)(2)

Attachment 3 – Mitigation

An adaptive management plan is provided, however, it does not include approaches or corrective actions to resolve problems that may arise, such as insufficient hydrology for stream restoration, invasive species proliferation or low survival of bare root seedlings.

To comply with the Federal Mitigation Rule, the applicant must provide detailed long-term management plans. A long-term management plan should include a description of the long-term management needs, annual cost estimates for these needs, and the funding mechanism used to meet those needs. Appropriate long-term financing mechanisms include endowments, trusts, contractual arrangements with future responsible parties, and other appropriate financial instruments.

The current application indicates that deed restrictions will be initiated prior to and in conjunction with the Corps approval to cease monitoring; however, specific language under the applicant's long term management discussion indicates there may be portions of the compensatory mitigation where deed restrictions may not be placed. The Guidelines require protection of the entire property in perpetuity.[23] Failure to establish appropriate site protection instruments compromises the long-term sustainability of the resource.

[23] 40 CFR 230.94(c)(4) & 230.97(a)

Enclosure 1

March 17, 2016 USEPA and FWS letter

MAR 17 2016

WW-16J

Colonel Christopher G. Beck
District Engineer
U.S. Army Corps of Engineers
Louisville District
P.O. Box 59
Louisville, KY 40201-0059

Re: United Minerals Company, LLC-Seven Hills Mine, LRL-2013-635-GJD

Dear Colonel Beck:

The U.S. Environmental Protection Agency and the U.S. Fish and Wildlife Service (FWS) (the agencies) have reviewed the Clean Water Act (CWA) Section 404 permit application (permit application) materials and the Public Notice for the subject project. The agencies appreciate the efforts by the Louisville District to involve the EPA, FWS and other agency partners in preliminary discussions and reviews of the proposed Seven Hills Mine and other mining activities proposed nearby.

United Minerals Company, LLC (United Minerals) proposes to impact 510.16 acres of wetlands (of which 463.18 acres are forested wetlands), 53,840 linear feet of streams and 72.85 acres of open water, for the construction of the 1,679.6 acre Seven Hills Mine in the Highland-Pigeon Creek watershed southeast of Elberfeld in Warrick County, Indiana. Approximately 648.5 acres of the site have been previously mined and reclaimed in the 1990s and are not proposed to be impacted for coal extraction. Both agencies have commented on the preliminary plan for this mine, and we want to highlight the following comments based on our reviews of the permit application and subsequent Public Notice.

The Seven Hills Mine is immediately west of the recently proposed High Point Mine and the nearby Liberty Mine. These three adjacent mines would cumulatively impact over 100,000 linear feet of streams and 600 acres of wetlands within the Highland-Pigeon Creek watershed. Given the scope and environmental impacts associated with these proposals, the agencies continue to believe that the projects should be evaluated in a coordinated fashion, and that an Environmental Impact Statement (EIS) should be prepared. This would allow for a more comprehensive analysis of cumulative impacts, and consideration of additional practicable alternatives that could meet the project purpose while avoiding and minimizing anticipated significant environmental impacts.

The agencies are concerned that the project's proposed CWA Section 404 discharges may result in unacceptable impacts to Pigeon Creek, its forested floodplain wetlands and tributaries, and

may impact downstream receiving waters, such as the Ohio River. The effects of multiple large scale surface mining operations and agricultural activities have increasingly taken a toll on the Pigeon Creek watershed. Project area aquatic resources, such as contiguous tracts of increasingly rare bottomland hardwood wetlands, filter out nutrients, and excess sediments and other pollutants to help prevent them from entering nearby tributaries. The loss of these project area aquatic resources would eliminate this function and its contribution to maintaining water quality in downstream waters, such as the Ohio River. Furthermore, the agencies have concerns that, based on the past performance of mitigation efforts in nearby watersheds, proposed efforts to offset impacts to project area aquatic resources may not prove successful.

The affected wetlands and other bottomland forest provide essential habitat for state endangered and federally listed species including Indiana bats (*Myotis sodalis*), northern long-eared bats (*Myotis septentrionalis*), evening bats (*Nycticeius humeralis*), cerulean warblers (*Setophaga cerulean*), northern harriers (*Circus cyaneus*), and copperbelly water snakes (*Nerodia erythrogaster neglecta*). All of these species and several state species of special concern have been documented within the project area. The agencies are concerned about the potential impact of the project on these species.

Indiana has lost eighty-five percent of its wetlands, and large remaining tracts such as those present at the project site are rare. In particular, forested wetlands are a declining resource. According to the National Wetland Reports by FWS, forested wetlands experience the greatest decline of all wetlands types. United Minerals asserts that the additional range of habitat types that would result from reclamation activities at the Seven Hills Mine site will be an improvement over existing conditions. However, given the high acreage of forested wetlands that would be lost, the time it takes for forests to mature, and the poor performance of mitigation on the nearby Somerville and North Millersburg mines, it is highly unlikely that the reclaimed areas will develop habitat that is more productive than what currently exists.

The agencies detailed comments follow.

Independent Utility

The Seven Hills Mine would abut the proposed 3,084.6 acre High Point Mine (LRL-2013-444-rjb), which is also operated by United Minerals. As proposed, the Seven Hills Mine would share the coal slurry pond established as a component of the High Point Mine. Haul roads and other attendant features that would provide access to and serve the Seven Hills Mine, are also described in the High Point application. Based on the information currently available to the agencies, it is unclear whether the Seven Hills Mine would be considered to have independent utility. Therefore, the agencies' request that the Corps treat the proposed High Point Mine and proposed Seven Hills Mine as a single project. Evaluating the two mines as a single project would allow for a more complete evaluation of practicable alternatives, including efforts to further avoid and minimize environmental impacts. The agencies' previous letters requesting that both proposed mines be evaluated as a single project are enclosed (Enclosures 1 and 2).

Significant Degradation

In accordance with the Clean Water Act Section 404(b)(1) Guidelines (the Guidelines), the agencies believe that this project as proposed may cause or contribute to a significant degradation of Pigeon Creek.[1] The preamble to the Guidelines states that discharges may not be permitted if they will have "significantly" adverse effects on various aquatic resources. In this context, "significant" and "significantly" mean more than "trivial."

Secondary and cumulative impacts are explicitly evaluated during the significant degradation determination. Secondary impacts include effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material.[2] Cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems.[3]

The table below summarizes the cumulative footprints of mining activities in the Highland-Pigeon Creek Watershed and the enclosed map graphically depicts those activities (See Attachment 1).

Mining Activity in Indiana Portion of Highland-Pigeon (HUC 8) Watershed	**Acres**	**Square Miles**
Actively removing overburden and/or coal extraction	26,856	42
Overburden removal and coal extraction complete	7,308	11
Permit bonded - no overburden removal or coal extracted	4,899	8
Temporary cessation of operations	10	~0
Reclaimed Mines	23,135	36
Total	**62,208**	**97**

Within the Highland-Pigeon Creek watershed (8-digit HUC 05410202) over 352.67 acres of wetlands and 527,689 linear feet of stream impacts have been permitted for direct impact by surface coal mining operations in the last 8 years. An additional, 555.86 acres of wetland impacts (including impacts to 463.83 acres of forested wetlands) and 113,187 feet of stream impacts have been identified on the proposed mine sites for the Seven Hills and High Point mines. In total, the permitted and proposed mining activities account for 18,762.6 acres of direct impact, which is 7.9% of the total area of the Highland-Pigeon Creek watershed.

[1] 40 CFR 230.1(c)
[2] 40 CFR 230.11(h)
[3] 40 CFR 230.11(g)

The proposed loss of nearly 500 acres of forested wetlands from this project would will increase nutrient loading and sedimentation, causing or contributing to significant degradation of Pigeon Creek and ultimately affecting the quality of freshwater inflow to the Ohio River. Pigeon Creek is listed as impaired for E. coli, dissolved oxygen, impaired biotic communities and nutrients and the Ohio River is listed as impaired for E. coli, dioxin, total mercury and PCBs on Indiana's 303(d) list of impaired waters.[4] Given the algal issues in the Ohio River in 2015, the agencies are also concerned about possible effects in the Ohio River with respect to safe drinking water, wildlife and recreation (see Attachment 2).

In addition to the localized impacts to water quality, the increase of nutrients and specifically nitrogen in watershed has had a demonstrated effect on water quality. The United States Geologic Survey published a study on the percentage of nitrogen from interior watersheds delivered to the Gulf of Mexico. The Highland-Pigeon Creek watershed was estimated as one of the watersheds to contribute more than 90% of its nitrogen to the Gulf.[5] EPA's initial SWAT modeling, which does not include cumulative impacts of mining, indicates that the loss of these wetlands along Pigeon Creek would increase nutrient loads to the Ohio River by over 3,500 pounds annually and increase sediment loads by over 260,600 pounds annually.

Project Area Aquatic Resources

The agencies are concerned that the project's CWA Section 404 discharges may result in unacceptable impacts on the Ohio River, Pigeon Creek, and its forested floodplain wetlands. The bottomland hardwood forests within the Pigeon Creek floodplain are an important and productive habitat. In addition to the habitat value of natural areas, bottomland hardwoods serve a critical role in the watershed by reducing the risk and severity of flooding to downstream communities by providing areas to store floodwater. These wetlands improve water quality by filtering and flushing nutrients, processing organic material, and reducing sediment before it reaches open water.[6]

The Pigeon Creek floodplain is an extremely valuable resource for numerous and significant wildlife species, including migratory birds, non-game wildlife, and threatened and endangered species. Portions of the corridor contain Indiana Department of Natural Resources (IDNR) wetland conservation areas, and other portions are recognized for their unusually high diversity of bird species. The permit area is bordered on the east by an Audubon Society Important Bird Area and on the southeast by the IDNR Bluegrass Fish and Wildlife Area. Bird surveys by Audubon Society members in these two areas and in the Buckskin Bottoms area upstream of the permit area reported over 200 species of birds, including 25 species of waterfowl and 14 species listed as state endangered. Given the proximity and similarity of habitat, it is highly likely that many of those bird species also use this area.

From its headwaters, Pigeon Creek flows approximately 47.5 miles bisecting downtown Evansville before joining with the Ohio River. During the 1800's, Pigeon Creek was part of the

[4] IDEM, 2014 Indiana Integrated Report Appendix H, 303(d) Attachment 1: TMLD Development Schedules
[5] Richard B. Alexander, Richard A. Smith, and Gregory E. Schwarz, "Effect of stream channel size on the delivery of nitrogen to the Gulf of Mexico", *Nature*, 17 February 2000, Vol. 403
[6] http://water. epa.gov/type/wetlands/bottomland.cfm

Wabash-Erie Canal and a portion of Pigeon Creek onsite is part of the former canal. Today, the creek provides several recreational paths and fishing access for the public to enjoy. The City of Evansville has developed the Pigeon Creek Greenway Passage. This path is a multiuse trail that follows the creek and then extends along the banks of the Ohio River. The Greenway also incorporates boat launches that the City of Evansville touts as "an important urban watershed and wildlife corridor where you might see an egret or blue heron. With its diversity of plants and animals, the Greenway serves as an outdoor classroom and a valuable learning tool for the environment."[7] In 2004, the path was designated a National Recreation Trail by the National Park Service.

Wetlands in the Pigeon Creek watershed also help to protect the quality of the Ohio River from nonpoint source pollution from urban runoff, agricultural activities, and both existing and abandoned mines. The Ohio River serves as a source of drinking water, hydroelectric energy, shipping route to the Mississippi River, recreation and fishing. There are presently several fish consumption advisories for the Ohio River.[8]

Endangered and Threatened Species

The proposed project is within the range of the federally endangered Indiana bat (*Myotis sodalis*), and the federally threatened northern long-eared bat (*Myotis septentrionalis*). An Indiana bat maternity colony from a known primary roost tree has been documented using the southern portion of the proposed project area for foraging, and bat survey results indicate the presence of an additional maternity colony which forages on the northern end of the permit area. Although it has not been addressed in the permit application, at least one northern long-eared bat maternity colony has also been documented in the project area; reproductively active females were captured during bat surveys. The proposed mining activity will temporarily or permanently eliminate approximately 690 acres of summer habitat for these species. The proposed restored forest will not become suitable habitat for many years, if ever.

The copperbelly water snake (*Nerodia erythrogaster neglecta*) is known to have reproducing populations along the Pigeon Creek corridor, with known records of individuals in the project area. This species is federally listed as threatened in the northern part of its range, but listing was precluded in southern Indiana due to the development of a Copperbelly Water Snake Conservation Agreement and Strategy, endorsed by the FWS, the Indiana DNR, and the Indiana Coal Council (Agreement). Even though it has expired, the Agreement has proven effective in avoiding impacts to and conserving copperbelly water snake habitat. This permit application is the first action that the FWS is aware of that would not follow the tenants of the Agreement. This type of mining activity in prime habitat could cause the FWS to re-evaluate listing of the southern population of the copperbelly water snake.

The following species were also documented within the project area:

[7] http://www.evansvillegov.org/modules/showdocument.aspx?documentid=12739
[8] http://orsanco.org/river-facts/conditions

State endangered species: northern harrier, least bittern, black-crowned night heron, black tern, Henslow's sparrow, osprey, yellow-headed blackbird, short-eared owl, sedge wren, marsh wren, barn owl, Virginia rail, American bittern, and loggerhead shrike.

Waterfowl: Canada goose, gadwall, mallard, hooded merganser, red-breasted merganser, bufflehead, ruddy duck, wood duck, northern shoveler, lesser scaup, American wigeon, redhead, ring-necked duck, green-winged teal, common goldeneye, northern pintail, snow goose, canvasback, American black duck, tundra swan, greater scaup, cackling goose, white-winged scoter, common merganser, and mute swan.

Scope of NEPA Analysis

The NEPA analysis should include the entirety of the area proposed for mining, including both uplands and aquatic resources. As a result of the proposed Corps' action, there would be direct, indirect, and cumulative human health and environmental impacts beyond the regulated waters, including indirect or cumulative impacts that may be outside of the mine footprint. The NEPA analysis should extend outside of the regulated activity because the "*environmental consequences of the larger project are essentially products of the Corps permit action*".[9] Further, based on potential impacts to aquatic resources and threatened or endangered species, sufficient Federal involvement exists to expand the scope of the NEPA analysis beyond the regulated activity.[10] Based on the above, the agencies find that the scope of the NEPA analysis should extend outside of the regulated activity, based on potential direct, indirect, and cumulative impacts to resources.

As discussed above under *Independent Utility*, EPA recommends the scope of the NEPA analysis include both the Seven Hills Mine and the adjacent High Point Mine. The analysis should also consider other mines which may be connected actions[11] and/or similar actions.[12] Impacts from nearby mining operations should be analyzed in the same NEPA document.

Preparation of an Environmental Impact Statement

NEPA states that major federal actions which could significantly affect the quality of the human environment require an EIS be prepared. The Council on Environmental Quality (CEQ) has defined "significantly" by two criteria: *context* and *intensity* of impacts of the proposed project.[13] Seven Hills Mine would cause significant environmental impacts, and, therefore, an EIS should be prepared. We recommend consideration of the following factors regarding significance:

- **Cumulative Impacts:**[14] The proposed mine and the other mining activities would likely lead to impacts to the environment and human health that are cumulatively significant. Mining in this watershed has continued over the last 100 years. A

[9] 33 CFR Part 325, Appendix B Section 7(b)(2)
[10] 33 CFR 325 Appendix B, Section 7(b)(2)(iv)
[11] 40 CFR § 1508.25(a)(1)
[12] 40 CFR § 1508.27
[13] 40 CFR § 1508.27
[14] 40 CFR § 1508.27(b)(7)

cursory examination of surface coal mining projects within the Highland-Pigeon Creek watershed (8-digit HUC 05410202) in the last 8 years shows that over 352.67 acres of wetlands and 527,689 linear feet of stream impacts have been permitted for direct impact by surface coal mining operations. Additionally, 555.86 acres of wetland and 113,187 feet of stream have been identified on the proposed mine sites, which include Seven Hills and High Point mines. All permitted and proposed mining activities in the last 8 years directly affect 18,762.6 acres, which is 7.9% of the total area of the Highland-Pigeon Creek watershed.

Both particulate matter and hazardous air pollutant levels would be expected to increase as a result of continued mining in the area, exacerbating human health problems related to poor air quality. Nearby communities also experience cumulative and multiple impacts related to the mining and processing of coal, such as noise and vibration. Additionally, the eventual combustion of coal mined at Seven Hills and High Point mines would release high levels of greenhouse gas emissions and contribute to climate change. Therefore, because the impacts from the Seven Hills Mine and other proposed mines could potentially have cumulatively significant impacts on human health and the environment, an EIS should be prepared.

- **Unique characteristics of the geographic area:**[15] The mine site includes areas which the agencies consider to be of significant value: Pigeon Creek and the bottomland hardwoods in the Pigeon Creek watershed. The subwatershed (12-digit HUC Clear Branch Pigeon Creek) is a candidate for protection per Indiana Department of Environmental Management (IDEM) watershed management plans. The fact that eighty five percent of the wetland resources once present in Indiana have been lost or altered makes remaining wetlands especially critical resources for conservation.[16] According to the Indiana Wetlands Conservation Plan, wetlands serve important functions, both in human benefits, such as maintaining the quality of drinking water and controlling flooding, and in environmental benefits, such as providing habitat for wildlife, including threatened and endangered species. The resources proposed for impact onsite are used by an endangered species, a threatened species, and a species listed as threatened in its northern range. Based on the scale of the proposed project's impacts to important aquatic resources and other ecologically critical areas, an EIS should be prepared.

- **Public Health or Safety:**[17] Living near proposed surface coal mines increases exposure to pollutants and other hazards, raising human health concerns, such as cardiopulmonary diseases and cancers, respiratory disease, kidney disease, hypertension, and issues related to psycho-social stressors.[18] Environmental impacts

[15] 40 CFR § 1508.27(b)(3)
[16] Status and Trends Report on State Wetland Programs in the United States.
[17] 40 CFR § 1508.27(b)(2)
[18] Hendryx, M., and Ahern, M. *Relations between health indicators and residential proximity to coal mining in West Virginia.* American Journal of Public Health, 2008; 98: 669-671, Walker, E., PhD and Payne, D., MPH *Health Impact Assessment of Coal and Clean Energy Options in Kentucky.* Rep. Kentucky Environmental Foundation, n.d. Web 19 Nov. 2015

from surface coal mining, processing, and burning that contribute to human health include, but are not limited to, water contamination, air emissions, noise, vibration, and flooding. Federally enforceable state regulations prohibit visible emissions from mining activities from crossing property lines,[19] though mine blasting may not be able to meet that requirement. Demographic data indicate a high percentage of children living in the area are under the age of five. Children are particularly vulnerable to impacts from exposures to air pollutants. Environmental data show high levels of particulate matter ($PM_{2.5}$) and a high number of major water dischargers in the area. We are concerned about cumulative impacts to the surrounding communities given that Seven Hills Mine would be located near other operating and proposed mines, further exacerbating existing exposures. Based on the potentially significant impacts to public health and safety, an EIS should be prepared.

- **Threatened and Endangered Species:**[20] As discussed above, the proposed Seven Hills Mine is within the range of the endangered Indiana bat (*Myotis sodalis*) and the threatened Northern long-eared bat (*Myotis septentrionalis*) and these species have been documented using the site. Additionally, the Copperbelly watersnake (*Nerodia erythrogaster neglecta*) is known to have breeding populations along Pigeon Creek. Because there are potentially significant impacts to threatened or endangered species, an EIS should be prepared.

The agencies note that preparation of an EIS for a surface coal mine would not set a new precedent for the analysis of impacts to human health and the environment. EISs have been prepared for coal mines with similar scopes of impacts, such as:

- Fort Worth Corps District is currently considering a Regional Draft EIS for Surface Coal and Lignite Mining in Texas (Draft EIS CEQ #20150191);
- Fort Worth Corps District prepared an EIS for the Rusk Mine in Texas (Final EIS CEQ #20110148);
- Fort Worth Corps District prepared an EIS for the Three Oaks Mine in Texas (Final EIS CEQ #20030199); and
- Louisville Corps District previously issued an EIS for the Delta Coal Mine Complex in Illinois (Final EIS CEQ #19960416).

The NEPA process allows the Corps to fully consider potential impacts and measures to avoid, minimize, and mitigate those impacts as a means to achieve more informed decision-making and better project outcomes. The scope of analysis for the NEPA document on the proposed Seven Hills Mine should cover the entire mine site, including both uplands and aquatic resources, and the entirety of High Point Mine. Due to potentially significant cumulative impacts, adverse impacts to threatened and endangered species, impacts to unique characteristics of the geographic area, and risks to public health and safety, the agencies believe the Corps should prepare an EIS.

[19] 326 Indiana Administrative Code 6-4-2
[20] 40 CFR§ 1508.27(b)(9)

Mitigation and Monitoring

The applicant proposes to mitigate for 510.16 acres of wetland (462.18 acres palustrine forested, 19.81 acres palustrine emergent, 13.43 acres of palustrine emergent, and 1.04 acres of palustrine unconsolidated bottomland) and 53,840 linear feet of ephemeral, intermittent and perennial stream, using a combination of on-site stream mitigation, and on-site and off-site wetland mitigation, in and out-of-type. Approximately 49,627 linear feet of stream is proposed to be constructed on-site in the approximate original contour.

Compensatory mitigation is the last step in the sequence during a CWA Section 404 permit review.[21] An in-depth discussion regarding mitigation is premature without first considering additional avoidance and minimization efforts to help ensure that proposed discharges represent the least environmentally damaging practicable alternative. However, the agencies have reviewed the proposed on-site and off-site compensatory mitigation plans and offer the following general comments at this time to help improve the mitigation plan.

The mitigation plan does not consider and compensate for the secondary, cumulative, and temporal effects of this project on the immediate and greater watershed. With two active and proposed abutting mines in the same watershed, it is imperative to take connectivity into account when designing mitigation.

The mitigation ratio proposed for forested wetland is 2:1. In support of this ratio, the applicant states that off-site mitigation will begin once the permit is issued, thereby offsetting both temporal and cumulative loss. This proposed mitigation ratio is not sufficient given the valuable functions of the resources proposed to be impacted, the temporal loss of function between the time the wetlands are impacted and the maturation of the mitigation site, and the risk associated with establishing forested wetlands. Forested wetlands experience the greatest decline of all wetland types and are extremely difficult to restore or create.

EPA and FWS recommend that the applicant be required to mitigate for bottomland hardwood forest at a ratio of 4:1. This ratio is appropriate given that the Federal Mitigation Rule states that the district engineer must require a mitigation ratio greater than one-to-one where necessary to account for the method of compensatory mitigation (e.g., preservation), the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site.[22] For mitigation to be considered successful, performance standards in the mitigation plan would have to be achieved. It is our understanding that the hydrology will not be re-established until the end of mine excavation for those areas of the project where mitigation is proposed within the mine footprint (rather than the mitigation proposed at the "avoided" areas).

Previous mitigation projects on mine sites have shown that the establishment, restoration, and enhancement of aquatic resources involves risk, and success in generating functional lift is often

[21] 40 CFR 230.91(c)
[22] 40CFR 230.93(f)(2)

elusive. The FWS asserts that wetlands of this magnitude, and in this landscape location, cannot be adequately restored based on the failure of previous efforts to restore bottomland forest associated with the North Millersburg Mine. The finished topography on much of the reclaimed area was too high in elevation to function as bottomland forest. Whereas the original intention of the reclamation plan was to reproduce floodplain elevations with forest surrounding the impoundments, in some areas the land adjacent to the impoundments looks more like rolling hills than floodplain. The area now consists chiefly of a mixture of upland fields, upland non-forested areas and large, shallow permanent impoundments. The Final Mitigation Rule requires the Corps to incorporate the consideration of risk into its compensatory mitigation decisions. This is generally done by applying appropriate ratios so that the amount of compensation will be adequate to offset the authorized impacts even if the mitigation is not 100% successful.

The plan proposes to restore 510.6 acres of palustrine forested wetlands within the proposed mine boundary and discusses how restoration in areas east of Pigeon Creek will allow for streams and wetlands to interact hydrologically during periods of overbank flooding. However, it is unclear how this interaction will be affected given the existing levee that runs along the east edge of Pigeon Creek, directly west of a portion of the proposed on-site mitigation. The floodway modification plan for this area is not supported by hydrologic monitoring or modeling. The application indicates a runoff retention ratio of 5:1 for the proposed area; however, runoff retention ratios of 20:1 are considered optimal for forested wetland based on the referenced study. Additional clarification on the determination of 2,500 acres as the contributing cumulative watershed is needed. The mitigation plan does not detail how the proposed stream and wetland mitigation will tie in with aquatic resources adjacent to the site boundary.

Assessment of existing uses should also consider the increased streambed infiltration that results from attempting to restore streams in mined areas. It is likely that the intermittent and ephemeral streams would not have adequate flow, which will impact existing uses in the compensatory mitigation streams. Considering the extensive impacts to the Highland-Pigeon Creek watershed as identified in the IDEM Highland-Pigeon Creek watershed management plan, stream corridor restoration efforts for the channelized sections of Pigeon Creek within, as well as up and downstream of the project boundary, are warranted.

In addition to the on-site reclamation, the applicant proposes off-site mitigation on 575.9 acres on Greathouse Island, an abandoned oxbow of the Wabash River, in Posey County, Indiana. Proposed mitigation measures include reforestation on 316.9 acres of open land and enhancement of 258.9 acres of existing forested wetland. The off-site wetland mitigation proposal is not acceptable. This proposed site is outside of the watershed of impact, and while it may provide some benefits to the Ohio River, to which the Wabash River is a tributary, it will not provide functional benefits to the Highland-Pigeon Creek watershed which has been extensively altered by mining. Permittee-responsible mitigation (PRM) projects are designed to offset specific impacts, and are therefore more likely to reduce the severity of project site impacts. The off-site PRM proposed on Greathouse Island appears to be intended to offset functional losses, however, they would not occur within the project footprint and would not result in functional gains within the watershed. According to the application, the enhancement areas will be selectively harvested to reduce the existing canopy cover by 50 percent. It is

unclear how harvesting trees from an existing forested wetland will provide mitigation for forested wetland impacts. The instability of the proposed site is also of concern. This site is a remnant meander of the Wabash River that is part of a dynamic system within a floodplain. Upstream hydrologic processes and perturbations will control hydrology in this area, including reactivating former channels and influencing channel shifting in the long-term. This complicates the long term management of the site and maintenance of functions in perpetuity.

The applicant claims that the off-site mitigation will provide additional habitat for the federally endangered Indiana bat, as well as several other bat species. While the mitigation, if successful, will provide habitat for the Indiana and northern long-eared bat, it will take several years before it is suitable foraging habitat and many more years before it becomes suitable roosting habitat, if ever. Also, the off-site mitigation will not provide any benefit to the known maternity colonies in the proposed project area, as both Indiana and northern long-eared bats display high site fidelity, returning to the same roosting habitat year after year.

While the objectives of the mitigation area are to provide flood, sediment, and nutrient storage for the Wabash River, there is no indication of the degree or level of functional lift provided compared to existing conditions, how that lift would benefit the watershed of impact or the likelihood of success given the activities proposed. Because it will take some years before the off-site mitigation is established, and it is nearly 40 miles and two watersheds away from the impact area, it is unlikely to offset either the temporal or cumulative loss of wetlands. EPA and FWS recommend the applicant explore mitigation opportunities within the impacted watersheds specified in the IDEM June 2003 Highland-Pigeon Creek Watershed Management Plan.

Monitoring and Long Term Management

The applicant needs to address financial assurances in a CWA Section 404 context and provide a long-term management strategy/plan for mitigation areas. The Guidelines state that "financial assurances may be in the form of performance bonds, escrow accounts, casualty insurances, letters of credit, legislative appropriations for government sponsored projects, or other appropriate instruments".[23] The increase in coal companies filing for Chapter 11 Bankruptcy[24] and the inherent risk in re-creating streams and wetlands on-site in the post mining landscape necessitate the establishment of appropriate financial assurances.

To comply with the Mitigation Rule, the applicant must provide detailed long-term management plans. A long-term management plan should include a description of the long-term management needs and annual cost estimates for these needs, and should identify the funding mechanism that will be used to meet those needs. Appropriate long-term financing mechanisms include endowments, trusts, contractual arrangements with future responsible parties, and other appropriate financial instruments.

[23] 40 C.F.R. §230.93(n)(2)

[24] http://www.businessfinancenews.com/24364-is-arch-coal-inc-on-the-verge-of-chapter-11-bankruptcy/

An adaptive management plan is provided, however, it does not include a root cause analysis or describe necessary corrective actions if insufficient hydrology makes stream restoration infeasible.

As part of the monitoring program for affected and reconstructed streams, physical, chemical and biological monitoring should be required. Biological monitoring, along with water chemistry and physical assessments, should occur: 1) prior to the initiation of mining activities to establish baseline conditions; 2) during the mining activities to assist in determining potential impacts to aquatic habitat and water quality downstream of the impacts; and 3) for at least five years after the completion of stream restoration and site reclamation activities at the mine site where appropriate to determine mitigation success. The applicant has not proposed sampling during mining.

The applicant currently proposes to monitor for 10 years or until success criteria are met. EPA agrees with this monitoring schedule as long as appropriate performance standards are established and met post mining. However, it should be noted that the expected tree growth may not advance during the 10 year monitoring period to the point where it will qualify as a palustrine forested wetland.

Thank you for your consideration of our comments and recommendations to aid in the evaluation of project impacts to environmental resources within the Pigeon Creek Watershed, consistent with the requirements of the NEPA, CWA and ESA. We look forward to discussing these comments with you. Prior to the closing of the public comment period additional CWA Section 404 comments will be forthcoming. Please contact Wendy Melgin from the U.S. Environmental Protection Agency at melgin.wendy@epa.gov or (312) 886-07745 and Marissa Reed from U.S. Fish and Wildlife Service at marissa_reed@fws.gov or (812)334-4261 with any questions.

Sincerely,

Tinka Hyde
Director, Water Division
U.S. Environmental Protection Agency

Scott Pruitt
Field Supervisor
U.S. Fish and Wildlife Service

Enclosures
Attachments

cc: Martha Clark-Mettler, IDEM
David Carr, IDEM
LeAnne Devine, USACE-Louisville District
George DeLancey, USACE-Louisville District
Bob Krska, USFWS-Regional Office, Bloomington, MN
Jason Miller, USFWS-Headquarters, Falls Church, VA

Enclosure 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

NOV - 6 2013

REPLY TO THE ATTENTION OF: WW-16J

U.S. Army Corps of Engineers, Louisville District
ATTN: Mr. George DeLancey, CELRL-OP-FW
P.O. Box 489
Newburgh, Indiana 47629-0489

Re: United Minerals Company, LLC-Seven Hills Mine, LRL-2013-635-GJD

Dear Mr. DeLancey:

The U. S. Environmental Protection Agency has reviewed the preliminary Clean Water Act (CWA) Section 404 permit application (permit application) for the subject project. Under United Minerals Company, LLC's preliminary proposal, approximately 458.2 acres of wetlands (of which 401.5 acres are forested) and 31,762 linear feet of streams, would be impacted for the construction of the 2,351.2-acre Seven Hills Mine in the Pigeon Creek watershed southeast of Elberfeld in Warrick County, Indiana. Approximately 1,370.3 acres of the site has been previously mined. Two distinct previously mined areas lie in the eastern and southern portions of the permit area. We offer the following comments based on our review of the preliminary permit application.

Land Use/Existing Conditions

A November 2010 letter from the United States Fish and Wildlife Service (USFWS) to the Indiana Department of Natural Resources (IN DNR) commenting on the Surface Mining Control and Reclamation Act (SMCRA) permit application for the Seven Hills Mine, conveyed serious concerns about proposed impacts to wetlands and other bottomland forest along Pigeon Creek that provide abundant habitat for numerous and significant wildlife species, including migratory birds, the Copperbelly water snake (*Nerodia erythrogaster neglecta*), and the federally endangered Indiana bat (*Myotis sodalis*). In addition to the habitat value of these natural areas, bottomland hardwoods serve a critical role in the watershed by reducing the risk and severity of flooding to downstream communities by providing areas to store floodwater. These wetlands improve water quality by filtering and flushing nutrients, processing organic material, and reducing sediment before it reaches open water.[1] Forested wetlands are ecologically important systems and represent some of the most diverse, complex, and productive freshwater wetlands in the Nation. In spite of their high value, these systems have experienced significant decline in

[1] http://water.epa.gov/type/wetlands/bottomland.cfm

area throughout the United States. Between 2004 and 2009, forested wetlands declined by an estimated 633,100 acres. This trend in forested wetlands loss only heightens the significance of any additional loss of these resources.[2]

United Minerals Company, LLC (UMC) asserts that the additional range of habitat types that would result from reclamation at the Seven Hills Mine site will be an improvement over existing conditions; however, this assertion is not supportable given the high acreage of forested wetlands that would be lost.

Alternatives Analysis

The preliminary application information does not provide an adequate range of alternatives that avoid and minimize impacts to aquatic resources at the project site to the maximum extent practicable under the CWA Section 404(b)(1) Guidelines (Guidelines). The amount of effort and level of detail included in the analysis must be commensurate with the level of aquatic resources impacted, which EPA believes to be significant in this case. EPA strongly recommends the applicant provide alternatives that include considerable avoidance of valuable bottomland wetland habitat. For example, UMC should consider alternatives that include mining from the eastern portion of the site (which includes previously mined areas) towards the west, up to the bottomland wetland areas (leaving a sufficient buffer), and augering under the wetlands. UMC makes a general statement in the permit application that "historically augering activities have proven to not be cost effective in most circumstances."

EPA understands that more coal can be extracted using the open pit method than the augering method; however, no information is provided to demonstrate that augering is cost prohibitive specific to this project. The practicability of each alternative should be considered in light of cost, logistics, and available technology and evaluated at a level that reflects the significance of the resources to be impacted.

Cumulative Impacts

In order to fully analyze the past, present, and reasonable foreseeable impacts as required under the National Environmental Policy Act (NEPA) and the Guidelines, the applicant should prepare a cumulative impacts analysis that details changes in hydrology, drainage patterns, and channel composition in the watershed. Impact assessments for wetlands should include direct and indirect impacts from previous and current actions as well as impacts from future actions as a result of changes in surface and groundwater hydrology.

The cumulative impacts analysis should also discuss potential ecological impacts associated with the loss of forest cover and forest fragmentation along the Pigeon Creek bottomlands. As mentioned above, USFWS expressed this as a serious concern in its November 2010 letter to IN DNR. The mining activity would temporarily or permanently eliminate at least 600 acres of summer habitat for the endangered Indiana bat (*Myotis sodalis*) and valuable habitat for other

[2] United States Fish and Wildlife Service. 2011. *Status and Trends of Wetlands in the Conterminous United States 2004 to 2009.*

species such as the Copperbelly water snake *(Nerodia erythrogaster neglecta)*. EPA understands that listing of this species in southern Indiana was precluded due to development of a *Copperbelly Water Snake Conservation Agreement and Strategy* (Agreement) endorsed by the USFWS, IN DNR, and the Indiana Coal Council, which is now expired. According to the USFWS, since the expiration of the Agreement, all parties have continued to implement the goals of the Agreement voluntarily, to avoid and conserve Copperbelly water snake habitat. This permit application is the first USFWS is aware of that would not follow the tenants of the Agreement.

A Clean Water Act Section 404 permit was issued for the nearby Liberty Mine, LRL-2010-218-gjd, in April 2012. The permit authorized impacts to 8,948 feet of perennial streams, 5,183 linear feet of intermittent streams, 6,212 linear feet of ephemeral streams, 35.3 acres of forested wetlands, 63.3 acres of emergent wetlands, and 0.8 acre of scrub-shrub wetlands. In addition, the recently proposed High Point Mine (LRL-2013-444-rjb) is approximately 3084.6 acres in size and abuts the proposed site. According to Robert Brown of your office, the proposed High Point Mine would impact approximately 27 acres of wetlands and 63,000 linear feet of streams. This mine would also be operated by UMC. EPA requests that the Corps treat the proposed High Point Mine and proposed Seven Hills Mine as a single project. They are abutting UMC mines, appear to be at similar stages of development in the permitting process, and the preparation plant serving both operations would be constructed on the High Point Mine site.

Environmental Justice Concerns

Based on the limited information provided in the permit application and other environmental and demographic data, EPA believes the proposed mine may raise environmental justice concerns. Demographic data indicate there are both high percentages of low-income individuals and children under the age of five, who are particularly vulnerable to impacts from mining operations. Environmental data shows high levels of particulate matter ($PM_{2.5}$) and a high number of major water dischargers in the area. EPA is concerned that communities would potentially be disproportionately impacted by the proposed mine. Further, EPA is concerned about cumulative impacts to the surrounding communities, given that the proposed mine would be located near an operating mine, further exacerbating existing exposures to sensitive populations.

Preparation of an Environmental Impact Statement

Section 102(2)(C) of NEPA identifies major federal actions that "significantly" affect the quality of the human environment requiring an environmental impact statement (EIS). In regulations the Council on Environmental Quality promulgated under NEPA, "significantly" is defined by two criteria: context and intensity of impacts of the proposed project.[3] 'Context' refers to the affected environment in which a proposed action would occur and 'intensity' means the degree to which the proposed action would include one or more of the factors listed below, among others. The Seven Hills Mine, as currently proposed, appears to exceed thresholds for significance based on the context and intensity of the project. Therefore, EPA strongly recommends that the Corps prepare an EIS for this project for the following reasons:

[3] 40 CFR § 1508.27

- **Unique characteristics of the geographic area:** The Seven Hills Mine would impact approximately 458.2 acres of wetlands and 31,562 linear feet of streams. The impacted subwatershed is a candidate for protection per Indiana Department of Environmental Management (IDEM) watershed management plans.[4] According to the Indiana Wetlands Conservation Plan, wetlands serve important functions, both in human benefits such as maintaining the quality of the water we drink and controlling flooding, and in environmental benefits, such as providing habitat for endangered species of wildlife and plants. The fact that the majority of the wetland resources once present in Indiana have been lost or altered makes wetlands especially critical resources for conservation.[5] Because of the scale of the proposed project's impacts to ecologically critical areas, EPA views the preparation of an EIS as appropriate.[6]

- **Public Health or Safety:** As discussed above, the proposed mine may raise environmental justice concerns. Adjacent communities include a high number of low-income individuals and a high number of children under the age of five. These populations are more sensitive to impacts and potentially experience unique exposure pathways. Communities may be exposed to multiple mine-related impacts, including fugitive dust, noise, and water discharge. Based on this, the potential for public health and safety risks are increased and an EIS should be prepared.[7]

- **Cumulative Impacts:** As mentioned in the comments on Cumulative Activity, Seven Hills Mine would be located near an active mine and abutting a proposed mine. Additional mining activities would likely lead to impacts that are cumulatively significant.[8] The cumulative impacts from the Seven Hills Mine and other proposed mines could potentially have significant impacts on human health and the environment, and would be grounds for the preparation of an EIS.

- **Threatened and Endangered Species:** As discussed above, the proposed Seven Hills Mine is within the range of Indiana bat (*Myotis sodalis*) maternity roosting habitat (endangered) and the Copperbelly watersnake, which has been previously proposed for inclusion on the federal threatened species list for this area. Potential impacts to threatened or endangered species are considered grounds for the preparation of an EIS.[9]

As discussed above, EPA believes the proposed project should be analyzed in conjunction with other similarly proposed projects in the area, including the High Point Mine. The operation of both mines relies on shared infrastructure, including the preparation plant, which is located within the proposed footprint of High Point Mine. This qualifies the permitting of both mines as connected actions,[10] which should be analyzed in one NEPA document.

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[4] http://ai.org/idem/nps/3241.htm

[5] Indiana Department of Natural Resources. 1996. *Indiana Wetlands Conservation Plan.*

[6] 40 CFR § 1508.27(b)(3)

[7] 40 CFR § 1508.27(b)(2)

[8] 40 CFR § 1508.27(b)(7)

[9] 40 CFR § 1508.27(b)(9)

[10] 40 CFR 1508.25(a)(1)

Mitigation and Monitoring

Compensatory mitigation is the last step in the sequence during a CWA Section 404 permit review.[11] An in-depth discussion regarding mitigation is premature given the applicant first needs to adequately address avoidance and minimization. However, per the Corps' request, EPA has reviewed the proposed on-site and off-site compensatory mitigation plans and offers the following general comments at this time to help improve the mitigation plan.

- The applicant needs to document how avoided stream reaches will be preserved or affected during mining and what that will mean for reconstructed stream reaches in terms of flow regime.
- The applicant needs to explain the rationale behind selecting the proposed performance goals of EPA Rapid Bioassessment Protocol (RBP) scores of at least 115 for intermittent stream mitigation reaches and at least 110 for ephemeral stream mitigation reaches. EPA recommends that the applicant locate reference reaches in the area to use as a guide to develop stream mitigation goals. As you know, reference conditions in the region can be used to scale the assessment to the "best attainable" condition for mitigation reaches.
- The mitigation ratio proposed for forested wetland is 2:1. The proposed mitigation ratio is too low given the valuable functions of the resources proposed to be impacted, the temporal loss of function between the time the wetlands are impacted and the maturation of the mitigation site, and the risk associated with establishing forested wetlands. EPA recommends that the applicant be expected to mitigate for bottomland hardwood forest at a ratio of 4:1.
- The off-site wetland mitigation proposal is in need of significant improvement. More detail on the existing conditions of the mitigation areas, especially those proposed for preservation and enhancement, is necessary to determine the merit of the proposal.
- The applicant needs to address financial assurances in a CWA Section 404 context and provide a long-term management strategy/plan for mitigation areas.
- As part of the monitoring program for affected and reconstructed streams, biological monitoring should be required to ensure there is no degradation to the communities that inhabit the streams. Biological monitoring, along with water chemistry and physical assessments, should occur: 1) prior to the initiation of mining activities to establish baseline conditions; 2) during the mining activities to assist in determining potential impacts to aquatic habitat and water quality downstream of the impacts; and 3) for at least five years after the completion of stream restoration and site reclamation activities at the mine site where appropriate to determine mitigation success. The applicant has not proposed sampling during mining.

In conclusion, we strongly recommend that the Corps consider our recommendation to prepare an EIS for this project and our comments above to protect the significant resources within the Pigeon Creek bottomlands. Thank you for the opportunity to review the preliminary application for the Seven Hills Mine. We look forward to discussing these comments with you. Please

[11] 40 CFR 230.91(c)

contact Melissa Blankenship of our office at (312) 886-6833 or (503) 326-5020 with any questions.

Sincerely,

Peter Swenson

Peter Swenson, Chief
Watersheds and Wetlands Branch

cc: David Carr, IDEM
Scott Pruitt, USFWS-Bloomington
James Townsend, USACE-Louisville District

Enclosure 2

Elizabeth Ruffle

United States Department of the Interior
Fish and Wildlife Service

Bloomington Field Office (ES)
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273

January 10, 2014

Mr. George DeLancey
U.S. Army Corps of Engineers
CELRL-OP-FW
P.O. Box 489
Newburgh, IN 47629-0489

Dear Mr. DeLancey:

This responds to your letter of August 13, 2010 requesting U.S. Fish and Wildlife Service (FWS) comments on a permit application (LRL-2013-635) for the United Minerals Company, LLC proposed Seven Hills Mine (S-00357) in Warrick County, Indiana.

These comments are consistent with the Fish and Wildlife Coordination Act (16 U.S.C. 661 et. seq.), the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, the U. S. Fish and Wildlife Service's Mitigation Policy, and the Indiana Coal Mining Regulatory Program, Section 310 IAC 12-3-107.

The proposed permit area covers 2351 acres. The proposed water resource impacts include over 31,762 feet of stream channel (2,589 feet ephemeral, 28,973 feet intermittent, and 200 feet perennial), approximately 458 acres of wetlands (401.5 forested, 4.45 emergent, and 52.15 shrub), and 29 acres of open water.

The permit area contains a combination of undisturbed bottomland along Pigeon Creek, including approximately 7,876 feet of the Pigeon Creek channel, and previously mined land in the North Millersburg, South Millersburg and Ayrshire mines. Most of the previously mined land has been reclaimed to a mixture of forest, wildlife land and agricultural land.

Wildlife Habitat

The affected wetlands and other bottomland forest provide abundant habitat for numerous and significant wildlife species, including migratory birds, Indiana bats (*Myotis sodalis*), Northern long-eared bats (*M. septentrionalis*), and the copperbelly water snake (*Nerodia erythrogaster neglecta*). We do not have a comprehensive bird species list for the permit area, however bird surveys by Audubon Society members in the Buckskin Bottoms area north (upstream) of the

permit area reported over 180 species of birds including 9 species listed at that time as State-endangered species.

An Indiana bat maternity colony from a known primary maternity roost tree has been documented using the southern portion of the proposed permit area for foraging, and bat survey results suggest the presence of an additional maternity colony which forages on the northern end of the permit area. The proposed mining activity would temporarily or permanently eliminate approximately 690 acres of summer habitat for this species and restored forest will not become suitable habitat for many years.

At least one Northern long-eared bat maternity colony has also been documented using the permit area with the capture of reproductively active females during bat surveys. Northern long-eared bats generally require similar summer habitat to that of Indiana bats, therefore the proposed mining activity would impact approximately 690 acres of habitat for this species.

The copperbelly water snake is known to have reproducing populations along the Pigeon Creek corridor. Listing in southern Indiana was precluded due to development of a Copperbelly Water Snake Conservation Agreement and Strategy endorsed by the FWS, the Indiana DNR, and the Indiana Coal Council (Agreement). Even though it has expired, the Agreement has proven effective at avoiding and conserving copperbelly water snake habitat. This permit application is the first action we are aware of that would not follow the tenants of the Agreement. This type of mining activity in prime habitat could cause the FWS to re-evaluate listing of the southern population of the copperbelly water snake.

Mitigation

A thorough review of the proposed mitigation has not been conducted; however, the FWS asserts that wetlands of this magnitude and in this landscape location cannot be adequately restored based on the failure of previous efforts associated with the North Millersburg Mine. The North Millersburg mined land on the east side of the Pigeon Creek floodplain was to have been restored to its pre-mining condition of bottomland forest, however the actual restoration consisted chiefly of a mixture of upland fields, upland non-forested wildlife habitat and large, shallow permanent impoundments.

Cumulative Impacts

The proposed Seven Hills Mine, in combination with the two previous Millersburg Mines, would permanently or temporarily eliminate the vast majority of approximately 4000 acres of habitat along the Pigeon Creek corridor. As previously stated in this letter, the bottomland forest in the North Millersburg permit area was permanently lost. In addition, the newly proposed High Point Mine would impact approximately 2,500 acres of wildlife and forest habitat, including 27 acres of wetlands and 63,000 linear feet of streams.

A November 2013 letter from the U.S. Environmental Protections Agency (EPA) to the U.S. Army Corps of Engineers (Corps) requests that the Corps treat the High Point Mine and the Seven Hills Mine as a single project. The FWS supports this request since the mines have overlapping permit boundaries and will share a coal processing plant.

Endangered Species

The proposed project is within the range of the Federally endangered Indiana bat (*Myotis sodalis*), sheepnose mussel (*Plethobasus cyphyus*) and the northern long-eared bat (*M. septentrionalis*), a species proposed as endangered under the Endangered Species Act. The sheepnose mussel is restricted to the Ohio River and will not be impacted by the proposed mining operation.

As stated previously, there is known summer habitat for Indiana and northern long-eared bats present throughout the permit area, and the proposed mining operation will eliminate a significant amount of habitat for these species. In accordance with our national biological opinion issued to the Office of Surface Mining, United Minerals Company developed an Indiana Bat Protection and Enhancement Plan (PEP) outlining measures to minimize take of Indiana bats. To date, the northern long-eared bat has not been addressed.

The northern long-eared bat was proposed for federal listing under the ESA on October 2, 2013. Species proposed for listing are not afforded protection under the ESA; however as soon as a listing becomes effective, the prohibition against take applies. The final listing decision for the northern long-eared bat is expected in October 2014. This could cause project delays, since potential adverse effects to the northern long-eared bat have not been previously addressed. Therefore, the FWS strongly encourages applicants to address the northern long-eared bat while it is proposed for listing. Interim guidance on addressing impacts to northern long-eared bats can be found on online at http://www.fws.gov/midwest/endangered/mammals/nlba/pdf/NLEBinterimGuidance6Jan2014.pdf

In conclusion, the FWS continues to oppose a mining plan that will substantially alter the Pigeon Creek bottoms and result in hundreds of acres of wetland impacts. We recommend that the mining operation be altered to avoid mining disturbance in existing forest and wetland habitat in the Pigeon Creek floodplain.

Due to the extensive wildlife habitat proposed under this mining plan, and the extent of cumulative impacts of mining in the Pigeon Creek bottomland corridor, we believe that development of an Environmental Impact Statement is appropriate.

The FWS considers the Pigeon Creek floodplain to constitute a productive and valuable public resource which serves significant natural biological functions, including food chain production, general habitat, and nesting, spawning, rearing and resting habitat for aquatic and land species. As defined by the Section 404(b)(1) Guidelines, we consider the site to be a Special Aquatic Site that possesses special ecological characteristics of productivity, habitat, wildlife protection and

other important and easily disrupted ecological values. Therefore, the U.S. Fish and Wildlife Service requests that this permit be denied.

Pursuant to Part IV, Paragraph 3(a) of the Memorandum of Agreement Between the Department of the Interior and the Department of the Army on Section 404(q) of the Clean Water Act dated December 21, 1992, it is the opinion of the Department of the Interior that the project may result in substantial and unacceptable impacts to aquatic resources of national importance.

We are providing this letter to reserve the option to elevate this individual permit action if significant differences remain between our agencies over the disposition of this permit, in accordance with the Memorandum of Agreement (MOA) between the Department of the Interior and the Department of the Army on Section 404(q) of the Clean Water Act, dated December 21, 1992. Pursuant to Part IV, Paragraph 3(b) of the MOA, it is the opinion of the Department of the Interior that the project will result in substantial and unacceptable impacts to aquatic resources of national importance.

For further discussion, please contact Marissa Reed at (812) 334-4261 ext. 1215 or marissa_reed@fws.gov.

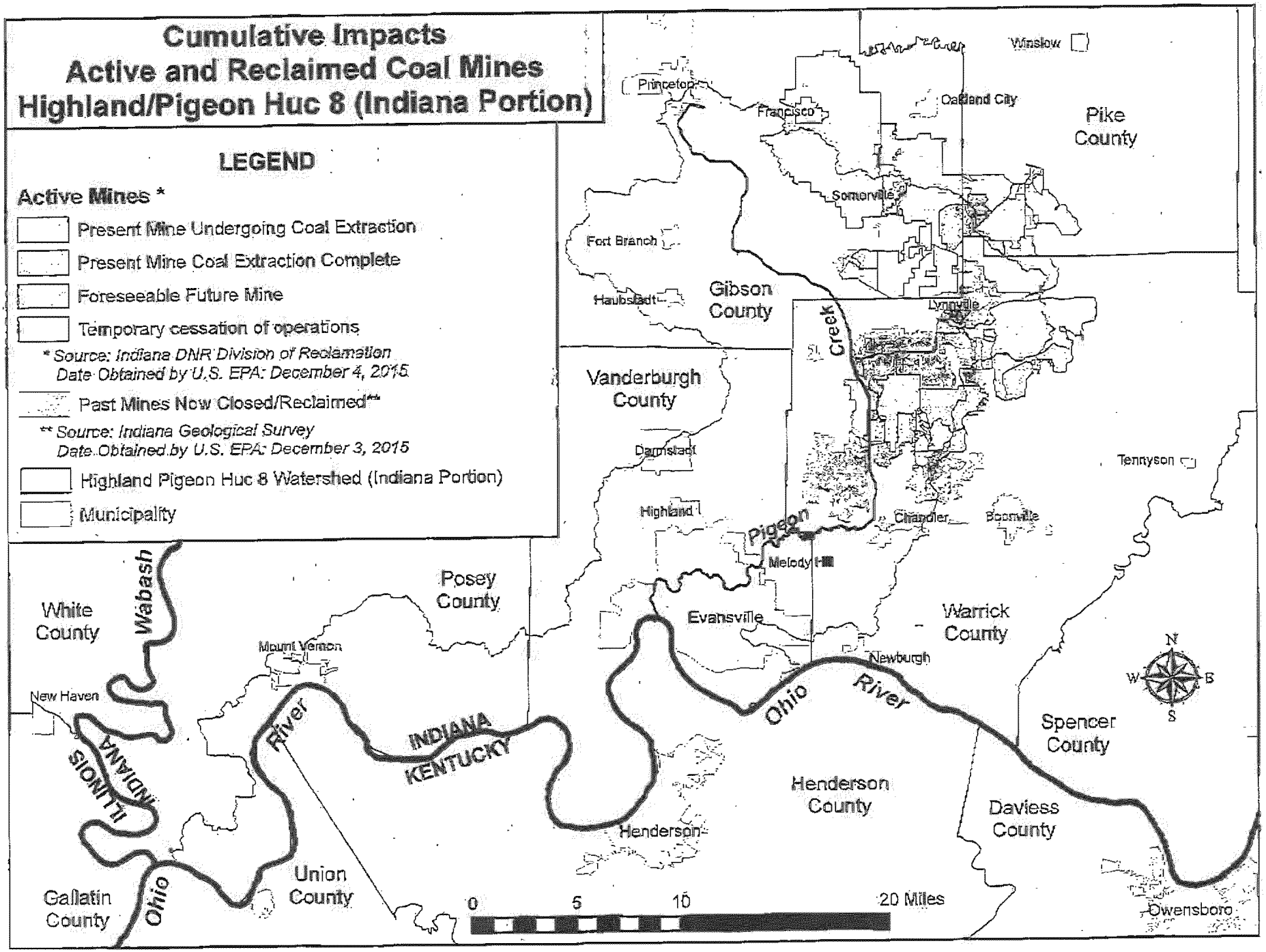
Sincerely yours,

Scott E. Pruitt
Field Supervisor

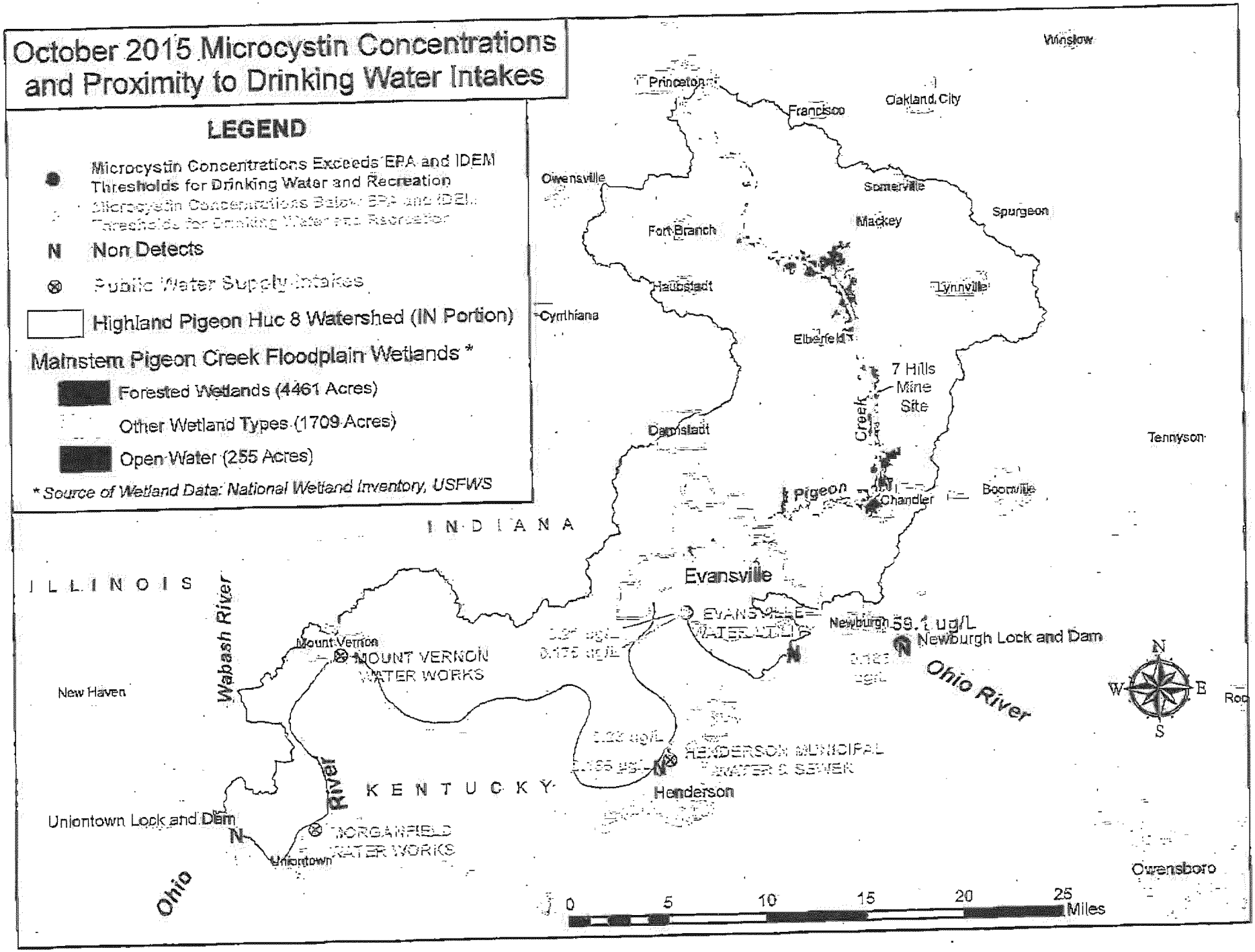
cc: Ramona Briggeman, IDNR Division of Reclamation, Jasonville, IN
Eric Langer, IDNR Division of Reclamation, Jasonville, IN
Melissa Blankenship, US EPA, Chicago, IL

Attachment 1

Cumulative Impacts
Active and Reclaimed Coal Mines
Highland/Pigeon Huc 8 (Indiana Portion)



Attachment 2



Enclosure 2

Millersburg II Mine Documents

AUG 0 6 1997

WW-16J

Colonel Ralph Grieco
District Engineer
U.S. Army Corps of Engineers
Louisville District
P.O. Box 59
Louisville, Kentucky 40201-0059

Attention: Mr. Ron Sadri, Reference No. 199501367-rjs

Dear Colonel Grieco:

This is in response to your Pre-Construction Notice for activities proposed by Peabody Coal Company at their Millersburg II North operations near Pigeon Creek in Warrick County, Indiana. Peabody is requesting authorization under Nationwide Permit No. 21 for discharges into approximately 50 acres of Palustrine Forested (PFO) wetlands associated with their proposed surface coal mining activity.

We have reviewed the materials you provided and we believe that the proposal, as presently stated, does not meet the requirements for the Nationwide permit because (1) the applicant has not avoided or minimized adverse impacts to the maximum extent practicable, and (2) the applicant's proposed mitigation does not fully address the loss of functions and values that will occur as a result of the mining activity.

The Pigeon Creek corridor is a locally important aquatic resource that cannot easily be replaced. Therefore, impacts to the corridor should be avoided to the extent possible, and unavoidable impacts should be mitigated within the corridor. A major impact to the corridor is a levee shown in the materials you provided. It appears that adverse impacts to the corridor could be significantly reduced by relocating the levee to the toe of the slope. Unless the applicant can demonstrate that this action is totally impracticable, we recommend that you require the applicant to relocate the levee.

The applicant's proposed mitigation is insufficient to replace the functions and values of PFO wetland, especially in view of the location of the proposed off-site mitigation, time needed for restoration of PFO functions and values, and the uncertainty of success.

Because of the value of the Pigeon Creek corridor, we recommend that the applicant make every effort to locate the mitigation area within the corridor. Given the size of the project area, it appears that the applicant could restore additional PFO wetlands within the corridor.

Since the time frame for PFO restoration is very long and because PFO restoration has had a high rate of failure, we recommend that you require a mitigation ratio of at least 2:1, which would require the applicant to produce 100 acres of PFO wetland. We recommend that at least 50 acres of this mitigation be within the Pigeon Creek corridor.

Because of inherent problems in successfully creating 100 acres of PFO wetlands, monitoring during the earthmoving and grading phases is critical. The proposed mitigation plan does not contain enough information to indicate that sufficient monitoring and corrective actions will take place at this time. Therefore, the mitigation plan should require additional monitoring by staff or other representatives of your office who are experienced in PFO restoration, and the permit should clearly state that the applicant will be required to take any corrective actions that you determine necessary as a result of the monitoring.

In summary, it appears that without further avoiding, minimizing, and mitigating adverse impacts, this project does not meet the requirements for the Nationwide permit. If these issues cannot be successfully addressed, we recommend that you require the applicant to apply for an individual Section 404 permit for the proposed activity.

My staff is available to discuss resolution of these issues with you and the applicant. If you have any questions, please call Mr. Thomas Glatzel of my staff at (312) 886-6678.

Sincerely,

Kevin M. Pierard, Chief
Watersheds and Nonpoint Source Programs Branch

cc: U.S. Fish and Wildlife Service, Bloomington IN
Indiana Dept of Environmental Management, Indianapolis IN
Indiana Department of Natural Resources, Indianapolis IN

08/01/97 | 8/1/97 8-4-97

Oldfield

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE, KENTUCKY 40201-0059

August 20, 1997

Operations Division
Regulatory Branch (South)
ID No. 199501367-rjs

RECEIVED
AUG 25 1997

Mr. Andrew Short
Peabody Coal Co.
Lynville Business Unit
P.O. 7
Lynville, IN 47619

Dear Mr. Short:

This is in regard to your application requesting authorization for construction of a levee, and surface coal mining and reclamation activities in Warrick County, Indiana. The area is adjacent to Pigeon Creek and is also specified as IDNR Permit No. S-00326, and is also known as the Millersberg II North permit. We have reviewed the submitted data to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 404 of the Clean Water Act.

As stated by Peabody Coal Co. (Peabody) the IDNR permit area includes 68 acres of jurisdictional wetlands. Approximately 50 acres of the wetlands would be disturbed. Of the 50 acres, only 4.6 acres would be in the actual surface mining area, and 23.6 acres would be for areas of surface disturbance in the proposed mining operation (silt basins, ditches, runoff from silt basins, levee). An additional 21.8 acres would be in an area of temporary surface disturbance for a heavy equipment crossing. The disturbance for a heavy equipment crossing was approved by letter dated April 3, 1997, from this office as part of a "Temporary road for moving mining machinery" under 33 CFR 323.4 (Discharges not requiring permits).

To minimize the impacts of the proposed coal mining operation, Peabody has redesigned the mining operation to avoid disturbing 190.8 acres of jurisdictional wetland. This would include areas designated as "habitat area" in the National Conservation agreement for the Northern Copperbelly water snake.

As mitigation for this proposal, Peabody proposes both on and off-site mitigation. There would be 25.0 acres in the off-site mitigation area, and 40.1 acres of wetlands in the on-site area within permit No. S-00326. The wetland type would be of a bottomland hardwood wetland (PFO1E).

The information supplied by you was distributed to the coordinating agencies in a Pre-Construction Notification (PCN). The responses received within the coordination period were from the U.S. Fish & Wildlife Service, Bloomington, IN, the U.S. Environmental Protection Agency, Chicago, IL. We have also received a response from the Indiana Department of Natural Resources after the comment period ended. Copies of the agency responses have been provided to you earlier.

The agency responses are essentially in four areas, (1) reduction of further impacts by relocation of the levee, (2) detailed mitigation standards for the on and off-site mitigation areas, (3) impacts to endangered species, and (4) requests that a Corps inspector or an independent consultant be used to oversee all phases of the bottomland forest reclamation.

This office has reviewed the information supplied by Peabody for different mining permits proposed for this area, and we appreciate the efforts taken to minimize the impacts to wetland. We would like to ensure the successful completion of the proposed wetland mitigation. We have also reviewed the supplemental information provided by Peabody in their letters dated August 18, 1997, and August 20, 1997.

Based upon our review of the submitted data, the responses to the PCN and provided this activity is authorized by the State of Indiana Surface Mining and Reclamation Program under Title V of the Surface Mining and Control and Reclamation Act of 1977, your proposal would qualify for Nationwide authorization under 33 CFR 330, No. 21 (Surface Coal Mining), as published in the Federal Register, dated December 13, 1996 provided you comply with the enclosed General Conditions and the following Special Conditions:

1. The mitigation plan is part of the reclamation plan approved by the State of Indiana Surface Mining Program for IDNR permit No. S-00326, and any subsequent revisions.

2. Peabody shall construct a minimum of 25 acres of forested bottomland hardwood jurisdictional wetland at the off-site mitigation area, and a minimum of 40 acres of forested bottomland jurisdictional jurisdictional wetland at the on-site area on permit No. S-00326.

3. Peabody shall by January 31, 1998, submit to this office for approval a detailed wetland mitigation plan for both the on-site and off-site mitigation areas. This plan would be in accordance with the "Wetland Compensatory Mitigation and Monitoring Plan Guidelines for Kentucky". Peabody shall make any

changes to the plan requested by this office during the review process.

4. Peabody shall agree to contract an outside independent consultant with expertise in wetland mitigation to prepare detailed plans, and provide monitoring/Inspection services to ensure the success of the forested wetland mitigation areas.

This authorization will be effective as soon as we receive your signed acceptance of the conditions. Please sign and date the duplicate copy of this letter in the space provided and return the signed copy in the enclosed envelope. Note that we also perform periodic inspections to ensure compliance with our permit conditions and applicable Federal laws.

If you have any questions, please contact this office by writing to the above address, ATTN: CEORL-OP-FS or by calling Mr. Ronny J. Sadri at (502) 582-5452. Any correspondence on this matter should refer to our ID No. 199501367-rjs.

Sincerely,

ORIGINAL SIGNED

Daniel L. Evans
Chief, South Section
Regulatory Branch

Enclosure

(I accept the conditions of this authorization)

Peabody Coal Co. Date

ADDRESSES FOR COORDINATING AGENCIES

Mr. David Schulenberg
Chief, Wetlands Regulatory Section
WQW-16J
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77 West Jackson Boulevard
Chicago, Illinois 60604

Mr. Dave Hudak
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Fish and Wildlife Service
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Bloomington, Indiana 47403-2121

Mr. Steve Jose
Division of Fish and Wildlife
Department of Natural Resources
402 West Washington Street, Room 273
Indianapolis, Indiana 46204

Mr. David Phillips
Division of Reclamation
Indiana Department of Natural Resources
RR # 2, Box 129
Jasonville,IN 47438

Inspection Crew (Sparks)